

a few components which can be called oxidation products. These are retained mechanically on the fibre. Colour reactions are used for proof of the presence of oxidized cellulose and Methylene Blue colours oxidized cellulose more strongly than unchanged cellulose. According to the investigations of Kauffmann and Knecht, however, this reaction is capable of interpretation in more ways than one. Other reactions are based upon the reducing action of oxidized cellulose as shown by Nessler's reagent, vat dyestuff and a solution of silver nitrate in ammonium and caustic alkali undergoing reduction. Oxidized cellulose forms with phenylhydrazin a yellowish brown osazon. All these reactions apply also for hydrolyzed cellulose. There are a number of quantitative methods, such as Ristenpart's Methylene Blue figure, Schwalbe's copper figure, and Kauffmann's permanganate indicator figure. The first two determine hydrolyzed cellulose as well, while the last-named covers in general all components soluble in alkali.

It has now been found that a solution of silver nitrate in ammonia (prepared without caustic alkali) reacts only very weakly upon hydrocellulose, but very strongly upon oxidized cellulose. A one per cent. solution is sufficient which contains just enough ammonia to permit the precipitate formed to dissolve again. Finer differences can be shown by a stronger solution, say, 10%. If the ammonia in this solution is replaced by sodium acetate, the reagent is also suited for the quantitative analysis. For this purpose 7 grams of sodium acetate are dissolved in a 1% solution of silver nitrate and the silver acetate precipitated is filtered off. To carry out the determination 0.5 gram of finely cut fibres are laid in a Jena round flask of 500 ccm and 20.0 ccm distilled water are added, whereupon the whole is boiled for a few minutes so that the fibres are uniformly moistened. Then 50.0 ccm of the silver reagent are added, the flask is placed on a boiling water-bath and warmed for half an hour, while stirring mechanically. The brown coloured fibres are then filtered on the suction pump, washed, dissolved in 25% nitric acid and the acid solution is titrated with  $\frac{n}{100}$  rhodanammium after having added ferric ammonia alum as an indicator. The value found is expressed as a percentage of the fibrous material and is called the "silver number". If the material treated in this way is again brought into reaction with the silver reagent, silver is again precipitated. In this way a constant basic value is reached. If this basic value is subtracted from the values found each time the reaction is carried out and the remainders are added, the "corrected silver number" is found.

Cuprammonium silk as a rule has a low silver number which lies only slightly above the basic value; the silver number is about 1. Viscose and nitro silks have a higher silver number (about 2 to 7). This can be used qualitatively to differentiate the two silks, since nitro silk is recognized by the diphenylamine reaction.

Comparative examinations of the copper number, the silver number, and the permanganate number of various types of cotton material showed that all three numbers rise as the degree of bleaching is raised. The permanganate number and the silver number are high for raw cotton before kier-boiling. Merely boiling with soda causes the permanganate number to sink, but the silver number still remains high, and both numbers only sink after the kier-boil. The copper number is low for raw cotton, rises slightly upon boiling off, and sinks again after the kier-boil. From this must be concluded that high silver and permanganate numbers indicate that the cotton has not been sufficiently kier-boiled. By boiling the fibre with hydrochloric acid 1:1 in the presence of a little phloroglucine it can be settled whether oxidized cellulose is present or merely insufficiently kier-boiled cellulose, the first-named giving a red colouration. Mercerizing the yarn raises the permanganate number so that this method is not suited for determining oxidized cellulose in mercerized yarn. That part of viscose silk which is soluble in alkali gives an enormously high permanganate number (390), while the silver number is very low. The copper number of hydrolyzed cellulose is also high, while the silver number remains low. This leads to the conclusion that the silver number is best suited for the unambiguous recognition of oxidized constituents.

*Artificial and natural dyestuffs and methods of dyeing them. A study upon the nature of dyes and dyeings.*

H. Pomeranz (Melliand Textilberichte, Vol. VIII, Nr. 8). The author had an opportunity in 1894 of visiting the aviatric laboratory of Otto Lilienthal and seeing his work upon the construction of a flying machine. The late Professor O. N. Witt, who led this excursion to Lilienthal's workshop, described the visit in "Prometheus" in the same year. Since that date aviation has progressed to a degree which Lilienthal, who was killed in an accident towards the end of last century, would never have dared to prophesy. Present-day aeroplanes have in general nothing in common with the ideas which guided Lilienthal, but in spite of this aeronautics look upon him as a pioneer and regard him as the father of aviation.

Lilienthal occupies this place in the history of aviation because he was the first to whom the idea occurred to learn aerial flight from nature which has provided birds with a build of body adapted for this purpose, an idea which he attempted to put into practice.

He proposed to provide the human body with appendages which would make it like a bird's. As a matter of fact aeronautics pursued quite a different course, but the possibility of human beings being able to fly by motions in the air as a bird does (*avis*=bird) was first appreciated by Lilienthal and that is his merit.

The author of the present article is of the opinion that the dyer of textile fibres should go to nature to teach him his art. Just as nature colours the glorious flowers, the hair of animals, the feathers of birds, and butterfly's wings, man must also colour his clothing.

Since man has learnt from nature to make dyestuffs such as indigo and alizarine, he can also learn how to dye objects certain colours, and the question is merely, can we make ourselves acquainted with the dyeing processes of nature itself?

Herr Pommeranz explains that he cannot give a definite answer to this question. He considers, however, that the dyeing methods with which we are acquainted have been created on the model of natural processes and resemble these to certain extent, although they are carried out in a quite different manner. The superiority of natural colourations is evidenced by their brightness and splendour, by their extreme fastness to light, by their fastness to washing, and their resistance to atmospheric influences, and so on. The author endeavours to show that this superiority is not to be appraised too highly, that the fastness to light is actually more apparent than real, and that the fastness to washing is simply due to nature's being able to produce a more intimate deposit of colouring matter in the micellae of vegetable and animal textures. And the very transience of natural colouration is the cause of their brilliant splendour and (paradox as it may sound) their resistance to the destructive action of light, water, and atmospheric influences.

The dyer is no more in a position to imitate a natural dyeing, i. e. to imitate the dyeing of a living cell, than Otto Lilienthal was able to turn human beings into birds.

A flyer at the present moment is a man who controls a certain machine, but nature served as model for the construction of this machine by its creation of the bird. The same principle applies to the dyeing of textile fibres which has its prototype in the operations of natural dyeing and still has much to learn from these processes. Just like aviation, however, it goes its own way.

#### *The use of ferrous hydroxide as a reducing agent for vat dyes.*

Paper read before the Eleventh Congress of the International Society of Chemists and Colourists at Dresden, 13th to 17th May, 1926. *H. Pommeranz.*

In 1912 the author took out German Patent No. 253 155 for a new process for discharging vat blue by reduction, which consisted in printing the cloth which had been dyed with indigo blue with a solution of ferrous sulphate and then passing it through a bath of warm concentrated caustic lye, by which means the dyestuff was simultaneously reduced and stripped off on the places printed. The discharged places appeared of a rusty yellow colour (*chamois*) and turned white after the iron oxide had been removed by dilute acid. The instructive history of the origin of this discharging process is briefly as follows.

Herr Karl Sünder, then Manager of the blue printing establishment of Moritz Ribbert in Hohenlimburg, Westphalia, instructed the author to find a process for producing colour discharges on indigo and other vat dyestuffs. At that date the white discharge according to the Leukotrope process of the BASF. had already been successfully introduced into calico printing everywhere. When the author applied himself to the solution of the problem, printing with vat dyestuffs had already made such progress that it could be called technically practicable. The problem in general was to alter the method of fixing the vat dyestuffs in printing in such a way that this fixation should take place while simultaneously destroying the indigo ground. It is well known that there are two processes of printing vat dyestuffs. That most generally used consists in printing the dyestuff together with the reducing agent and the requisite quantity of caustic lye on the fabric which has been dyed blue with a vat colour. The goods are then steamed and oxidized by washing in the presence of air or are treated with an oxidizing agent. According to the other less customary method, the dyestuff and the reducing agent are printed on the fabric which is then passed at once without any further treatment through a hot concentrated lye bath. By this means the dyestuff is vatted, dissolved, and fixed.

The first attempts made by the BASF. to discharge indigo blue with vat dyestuffs were also the first with the aid of the printing method and were not successful. The presence of caustic lye in the discharge printing colour naturally prevented the excellent operation of the Leukotrope white discharge process, that is to say, the familiar orange compound of indigo white, Leukotrope base and zinc oxide cannot then be formed. Con-

sequently pure coloured discharge effects could not be secured.

Karl Sünder suggested that it might be possible to attain success by the second method of printing vat dyes, known as Jeanmaire's process, and instructed the author to make investigations along these lines.

Jeanmaire used tin crystals as the reducing agent with a slight addition of ferrous sulphate. It was already known that stannous hydrate and caustic lye could destroy indigo blue without, however, yielding a serviceable discharge (German Patent No. 213 474 belonging to the BASF.). A mixture of ferrous hydroxide and caustic lye had never been tried because the ferrous hydroxide is unstable and oxidizes at once in the presence of air to ferric oxide. But when an attempt was made to print a reducing agent and secure a discharge effect by a passage through caustic lye, then ferrous oxide also came into question as reducing agent. The author made the attempt and it was then found that ferrous hydroxide is fixed firmly on the fibre, vating the indigo, and that it is completely removed by the caustic lye, but it was further found that the requisite quantity of  $\text{Fe}(\text{OH})_2$  must have the reducing action of at least two hydrogen atoms in order to give reliable results. If ferrous sulphate was to be taken as the oxidulating salt, at least 556 grams per litre discharge printing paste would have to be taken, which cannot be done.

All the salts of ferrous oxide hitherto known are unstable in the presence of air and therefore cannot be used for discharging indigo. The author concluded from the fact that several double salts of ferrous oxide and other metals are more stable, or even perfectly stable, that a ferrous oxide salt could be found which would deposit enough  $\text{Fe}(\text{OH})_2$  on the fibre to discharge indigo blue. Such double salts are  $\text{FeSO}_4 \cdot (\text{NH}_4)_2 \text{SO}_4 \cdot 6\text{H}_2\text{O}$ ,  $(\text{KCy})_2\text{FeCy}_2$ , and so on. The present state of the problem of discharging with  $\text{Fe}(\text{OH})_2$  appears to the author to be much the same as that of the hydrosulphite discharge before the discovery of the stable formaldehyde compound. Chemical research directed towards the preparation of ferrous oxide salts which are stable in air would seem in the author's opinion to offer the greatest likelihood of finding a suitable lower oxide compound.

The further remarks of the author refer to the so-called vitriol vat for dyeing indigo which is carried out in such a way that the scum of ferric hydrate is reduced to about one-third of the quantity usually met with. For this purpose a mixture of dyestuff and ferrous sulphate is added to the hot lime water when setting the vat. This simplifies the operation enormously and less lime and ferrous sulphate are required.

The shade of the indigo dyeing in the vitriol vat approximates more to that obtained by a previous preparation of the material to be dyed with ferrous sulphate. This admits of a simple explanation. The heavy loss of dyestuff which can be observed in the vitriol vat and is doubtless caused by the formation of the indigo white ferrous hydrate salt could be avoided if we were better acquainted with the metallic salts of indigo white. Unfortunately even the sodium and calcium salts have not been closely studied.

#### *Studies in Rag Sorting.*

*Roßmann*, Dipl.-Eng., Melliand Textilberichte, Vol. VIII. No. 1. The sorting of the raw material plays an important part in the manufacture of recovered wool. The initial materials are of the most diverse nature according to the final product to be manufactured and must be blended from very different points of view. The raw material is generally rags of very mixed quality which are sold either ready sorted or loosely classified, and the manufacturer has the task of making a selection from these for his purpose. Theoretically of course the possible varieties are countless, but work is confined practically to a few groups. Still about 2000 sorts or groups are in general use. Under such circumstances it is hardly possible to keep even one of the more important sorts in stock for sale as raw material in general, and it is advisable to make the sorting dependent upon the manipulation of the yarn. For this reason most of the plants which go in for fine sorting are affiliated to or form a part of the spinning mills using their rags.

In view of the importance of shoddy for the textile industry the author has carefully investigated the technics of rag sorting and describes tests and studies which he made in the rag sorting plants of a number of large cloth weaving mills. Although these studies thus cover only a definite special field, still they afford a good insight into the nature of rag sorting. The chief object was to find ways and means of simplifying the sorting and making it more economical. Further to reduce the dust which is such a nuisance in many plants and finally to make the work of the sorters less irksome.

The author devotes the first part of his article to a description of the working methods hitherto used. In the second part he gives the results of a careful investigation of the more important details observed, and in the third part works out the conclusions to be drawn from his studies.

#### *The use of the Hydrosan process in soaping prints with Alizarine Red.*

*M. Apfelbaum*, Engineer, Melliand Textilberichte, Vol. VIII, No. 3. The production of

a fine print with Alizarine Red on cotton depends upon several circumstances. In the first place, the proper composition of the printing colour is of importance and here in turn the nature and quantity of the fatty acids used and the mordants play a part. Aluminium and lime salts are indispensable components of the mordant for the formation of the lake.

The fatty mordants can be added in two ways. Either the goods are prepared beforehand with the requisite Turkey Red oil, or a certain quantity of a fatty preparation is added to the printing colour, such as Lizarol, for instance, that prevents a premature formation of the lake.

The amount of aluminium, lime, and tin salts required depends naturally upon the shade desired, as well as upon the hardness of the water used and the salts contained in it. Dissolved or soluble iron impurities are destructive; lime, magnesium, and aluminium compounds are necessary, so that the water must first be carefully examined. Water of 8° hardness (German scale) acts favourably. If only hard water is at disposal, it is advisable to use water of condensation for preparing the thickening and the printing colour, and to regulate the necessary mordants accordingly (e. g. aluminium in the form of the stable aluminium sulphoacetate, the lime as calcium acetate, the tin as oxalate or tartrate of tin).

The appearance of the print is further dependent upon the treatment of the goods after steaming, when they are soaped once or oftener. Hard water is here not merely injurious, but may even make it impossible to finish the printed fabric. The lakes, as is well known, are formed during the steaming, but in spite of this there always remains an excess of dyestuff on the fabric. The following treatment with chalk aims at combining any sulphuric acid present (resulting from the dissociation of the aluminium sulphate) or acetic acid (aluminium acetate) with lime, thus completing the fixation. In spite of rinsing quite a considerable amount of chalk clings to the fibre and then reacts with the hardness formers of the water used in the soaping process.

In April 1926 Dr. Ullmann, Vienna, in the course of a meeting of the Vienna section of the Society of Chemists and Colourists and later on at the Congress of the Society in Dresden, drew attention to a fatty preparation, called Hydrosan, placed on the market and prepared by Messrs. R. Bernheim, Augsburg-Pfersee, according to a process for which he had applied for patent protection. This product prevents the bad effects of hard water in the soaping processes mentioned above. It does not so much prevent the formation of lime soaps (under this general designation are included soaps of lime, magnesia, aluminium, and other salts), but rather induces

their formation in a form which has no injurious effects and, in particular, can be washed out. Details are given in Nos. 11 and 12 of this Journal (1926) and the reaction which takes place is described from the colloidal-chemical point of view. The most important points may here be briefly recapitulated.

A solution of soap is a colloid electrolyte, the solution being isomolecular. On coming into contact with salts (the hardness formers of the water) the suspensoid solution partly coagulates, the system becomes more labile, the degree of dispersity being influenced by the concentration and the temperature of the bath. Lime soaps which have been formed, macroscopic, microscopic and ultramicroscopic particles, remain partly in suspension and partly coagulate upon the surface of the liquid. The apparent non-separation of lime soaps at certain concentrations and temperatures is due to the reversible change of condition of the colloids, but an excess of salts of alkali earths makes the system irreversible. When the lime soap comes into contact with fibrous material it clings to it as an insoluble body, fills the pores of the fabric and can then be removed only with difficulty. The addition of Hydrosan makes the lime soap more disperse, the number of the particles visible under the ultramicroscope is greatly increased and the system appears to be more homogeneous throughout, which is confirmed by diffusion and dialysis tests. Hydrosan, however, has no influence upon the peptisation of lime soaps which have already been formed, so that it must be added either beforehand or together with the soap.

The excellent effects of the process described above permit of the conclusion that its use in other textile soaping processes would also be found to be valuable.

#### *The examination of aniline black.*

Prof. M. M. Tschilikin, *Melliand Textilberichte*, Vol. VIII, No. 3. It was found that this process is extremely injurious to health owing to the formation of aniline vapours which fill the workrooms and poison the workers, spreading through the buildings and their neighbourhood. The spread of the vapours makes itself very noticeable, even newspapers and boarding in the courtyard being tinged yellow.

The writer had long been acquainted with these facts, but the results of the investigation of the workers' protection induced him to take up the scientific examination of the question. These investigations showed that the matter is extremely interesting and important even from a purely economic standpoint. It was found that from 21 to 25% of the aniline used with potassium chlorate and potassium ferrocyanide for the aniline black bath are lost when drying the fabric. The

higher the temperature of the drying apparatus is, the more aniline evaporates. The free base is extremely volatile, as are also the nitric and lactic acid salts. When we consider the large quantities of aniline oil that volatilize in the great consumption of aniline black, it is disquieting to think that so much material is wasted, quite apart from the pollution of the surrounding atmosphere.

Most of the recipes resemble Prud'homme's process and the present investigation also follows these lines. In all recipes it is the general custom to add about from 5 to 10 % more of aniline than is theoretically necessary to form the aniline salt. In Russia the addition was quite recently doubled to improve the bath and strengthen the fabric. The investigation showed, however, that the addition completely volatilizes when the fabric is being dried, without protecting it in the least. A loss of strength also occurs in steaming. This investigation showed where the cause of the poisoning of the atmosphere must be looked for. The textile chemist is confronted by the necessity of carefully examining the recipes in regard to a rational utilization of the aniline.

#### A) Practical conclusions.

In the usual process of Prud'homme the following points must be observed:

1. The proportion of aniline and hydrochloric acid must be altered or, still better, ready prepared aniline salt must be used.
2. The quantity of aniline must be correspondingly reduced from 80 grams to 60 grams in 1.000 ccm dye bath.
3. A colloid body, such as 40 grams tragacanth dissolved in 1.000 ccm, must be added.
4. The action of the additions of the various bodies upon the reduction of the weakening must be studied.

#### B) In the drying apparatus.

The effect of the temperature must be carefully observed. The thermometers should be inserted above and below and provided if possible, with a signal which indicates an abnormal rise of temperature.

1. The temperature must not rise above 50° C (120° F).
2. After interruptions the drying apparatus must be cooled with cold air, for which purpose the flow of warm and cold air must be capable of regulation.
3. The goods must come out of the dryers into the working rooms quite cooled down, the last compartment of the drying apparatus being provided with a counter-stream of cold air.

#### C) In the agers.

1. The temperature in steaming must not exceed 95° C (200° F).

2. The steam must be sufficiently moist.

3. After steaming, the goods must be cooled in a special room separated from the working rooms and must be cold when placed on the truck (below 50° C).

## RAW MATERIALS AND PREPARATION OF THE FIBRE

### *Substitutes for Wool.*

(Text. Mercury, 1926, page 375.) The article discusses the various proposals and processes for replacing wool by other fibrous materials, which as a rule are of vegetable origin. Although many of these substitutes, such for instance, as staple fibre, or some special kinds of cotton, like Peru cotton, bear some resemblance to wool fibres, and although it may be admitted that valuable fabrics can be made from mixtures of wool and artificial silk, yet there seems to be no likelihood that a completely satisfactory substitute for wool will ever be found.

### *Our Sheep-breeding since 1870.*

W. Kolbe (Leipz. Wochenschr. Text.-Ind., 1926, page 950 and 970). The author gives a detailed statistical survey of sheepfarming in Australia from 1861 to 1912 and the German continental sheep stocks since 1873, which have declined by 78 per cent. between 1873 and 1914. A tabular survey of movements in the German sheep stocks from 1873 to 1915 is given arranged according to states and provinces.

### *The Properties and Use of Artificial Silk Waste.*

W. Cox (Text. World, 1926, pp. 24, 63). The article contains a survey of the present state of the working up of artificial silk waste and gives a hint of possibilities in the future. Although some attempts were made long ago to work up artificial silk waste, the work was only systematically taken up during the war when Germany was compelled to make the best use of its own spinning materials. The result is that Germany leads in this branch of industry. A discussion follows of the various processes for working up artificial silk waste and the uses to which it is put. The article concludes with a summary of the advantages and disadvantages of the goods made with artificial silk waste.

### *The Structure of the Cotton Fibre and the Resulting Properties.*

F. P. Slater (Journ. Soc. Dyers Col., 1927, p. 181). The botanical structure of the cotton fibre is explained by means of a large number of microphotograph and special attention is paid to the spiral form. The cotton fibre is not a solid body, but sponge-like, so that it is not surprising that cotton can absorb large

quantities of moisture. Cotton becomes electrified when worked in metallic machines, but this never becomes dangerous owing to the moisture content. The relations between structure, strength, extensibility, and elasticity are discussed and the capacity of absorbing dyestuffs, which varies according to the structure.

#### *South Africa as a Wool and Sheep Country.*

(Text. Rec., 1927, No. 525, pp. 55—57.) A survey is given of the world's wool production and South Africa's share, together with the historical development of South African sheep-breeding and its future prospects. At present South Africa has about 35 million sheep, 30 million of which are pure merinos. These sheep supply 208 million pounds of wool annually, that is to say, each sheep yields about 6 pounds of wool. South African wool was formerly rather decried because it contained much dirt, but this state of affairs has been improved by careful packing.

#### *Yarn Testing Machine.*

(Text. World, 1927, Vol. 71, p. 35.) The new tearing machine for cord, thread, and twine made by Messrs. C. Scott & Co., providence, is described and illustrated. By turning over a weight like a letter balance with two scales, the machine can work with from zero to 25 pounds, and from zero to 50 pounds. The clip are handy for use. It is driven by an electro-motor of one-eighth HP which can be plugged on to the lighting.

#### *The Relation between the Hygroscopicity of Cotton and the Moisture Absorption of Cotton Mercerized under Tension and without.*

A. R. Urquhart (Journ. Text. Inst., 1927, S. T. 55—72). The investigation confirmed the result previously found that the curves which represent the relations between the hygroscopicity of cotton and the concentration of the mercerizing lye run much like the curves of the swelling of cotton in baths of various concentrations. This was found to be the case for cotton mercerized under tension and without, and different kinds of cotton behaved alike. The tension exerted in mercerizing acts against the swelling force, so that cotton mercerized under tension takes up very much less moisture than cotton that is mercerized loose.

#### *South American Wool.*

H. Kenningham (Journ. Text. Inst., 1927, S. T. 81—98). South America occupies the second place after Australia in the production of wool, but the present production is less than

it was twenty years ago. The geographical and climatic conditions are favourable for the production of wool of the finest grade. The various governments are taking steps to promote sheep breeding. The chief wool producing countries are Argentina, Chili, and Uruguay, as well as Brazil. These countries together with their sheep-breeding and the types of wool produced are described in detail by means of tables and illustrations.

#### *Capillary Hygrometers for the Measurement of Atmospheric Humidity.*

W. Weltzien (Seide, 1927, pp. 175—177). The suggestions often made to control the moisture content of the air in textile works have led to a search for the most suitable hygrometer and a simple method of adjusting it, for which purpose the capillary hygrometer has been found to be most reliable. The author has constructed in the Textile Research Institute in Crefeld a simple aspiration psychrometer for testing and adjusting it which he describes.

#### *The Development of the Cultivation of Bast Fibre in the British Empire.*

Dr. Goulding (Journ. Text. Ind., 1927, pp. 83—98). The distribution and cultivation of bast fibres, such as flax, hemp, jute, ramie, Manilla hemp, Sisal hemp, Mauritius hemp, New Zealand hemp, and others are described. The history of their cultivation, the acreage, and the crop are fully gone into.

#### *The Examination of Artificial Silk.*

K. Götze (Seide, 1927, pp. 97—100). The numerous types of artificial silk on the market make their differentiation more and more difficult. Three methods are explained. 1. Purely chemical reactions based upon the colouration of the fibre, or upon characteristic impurities originating in the process of manufacture. 2. Colloid-chemical reactions based upon the fine structure of the various fibres. 3. Examinations of the cross-section. Two plates of microphotographs of 24 different kinds of artificial silk show the results of the latter method. These illustrations are intended to make it possible to distinguish even fine shades of difference between artificial silks of the same kind. The collection of microphotographs will be continued.

#### *A New Method of Distinguishing Viscose Silk from Cuprammonium Silk.*

E. Ristenpart (Seide, 1927, p. 104). Viscose soaked with acetic acid retains the acid even after lying for weeks in contradistinction to the other kinds of artificial silk. The author has found that small quantities of sulphuric acid are formed.

## International New Inventions Patent Reports

### RAW MATERIALS AND PREPARATION OF THE FIBRE.

#### *Flax Breaker.*

Fabricord Inc., New York, Patent No. 240786 (29. 4. 25). The flax straw is led over a table under an adjustable plate to a roller set with knives which break the straw on the edge of the table and knock out the woody matter, letting it fall to the floor. The straw then passes between a roller with a soft surface and a toothed roller which breaks the fibre once more and makes it supple. Schr.

#### *Manufacture of Viscose Silk.*

Henri Lumière, Fr. Pat. No. 6027 II (13. 12. 24). Sodium bicarbonate, either by itself, or in admixture with other neutral salts, e. g. sodium sulphate, is added to the usual spinning baths as a precipitant instead of the acids ordinarily used. Not only is the quality of the yarn improved, but the extremely unpleasant sulphuretted hydrogen is prevented from developing. It is recommended to prepare the spinning baths containing bicarbonate from the residual lye left after mercerizing the cellulose. The reverse process can also be applied and the caustic soda required for mercerizing can be recovered from the alkali carbonate contained in the exhausted spinning baths. Hae.

#### *Changeable Lining for Hydroextractors.*

Otto Sindl, Mähr. Ostrau, Czechoslovakia, Germ. Pat. No. 442188 (8. 2. 25). The invention relates to hydroextractor linings of soft rubber, or of rubbered fabric. Corresponding marks are made on the walls of the hydroextractor and of the lining so as to assure the proper position of the latter, for instance to ensure that the openings in the hydroextractor and the lining for removing water and air coincide. Gl.

#### *Spindle with Axial Ribs between which the Inner Projections of the Hollow Bobbin Engage.*

Fr. Küttner and O. Suckrow, Pirna, Germ. Pat. No. 441926 (30. 7. 25). The sides of these ribs form thumb-shaped inclined surfaces by means of which the bobbin is braked during the relative rotation by means of its internal projections. The inclined surfaces are not formed directly by the sides of the ribs, but

by grooves which start in the furrow between the ribs, break up the surface of the ribs, and end on the top of them. At certain points these grooves are provided with projections, so that when the inclined surfaces exert a braking action, the bobbin is further prevented from flying off axially by a kind of bayonet joint. Gl.

#### *Spinning Bath for Precipitating Artificial Threads, Films, Ribbons, and the Like, of Viscose.*

I. G. Farbenindustrie A. G., Frankfurt-on-Main, Germ. Pat. No. 442369 (7. 8. 21). Sulphonated condensation products are added in certain proportions to the bath containing mineral acid, the quantity of which is fixed by the purpose for which the bath is intended. The sulphonated condensation products are prepared by the action of phenols on wood in the presence of concentrated sulphuric acid. Gl.

#### *Process for Washing Artificial Products from Viscose which have been Wound on Bobbins.*

Hermingshaus & Co., G. m. b. H., Elberfeld, and Dr. Hesse, Vohwinkel, Germ. Pat. No. 440279. The invention aims at removing the gaseous or readily evaporable impurities, such as sulphuretted hydrogen, or carbon bisulphide, by physical means. For this purpose the bobbins charged with the acid artificial products of viscose are either subjected to strong suction, or strongly hydroextracted, or exposed to a current of moist steam to which gaseous alkalis, e. g. ammonia, may have been added. Evacuation is done under a liquid at ordinary temperature, or higher. The bobbins may also be dipped in hot water to which alkali or alkali salts, glycerine, or oils insoluble in water have been added. Gl.

#### *Thread Guides for the Spinning Cans of Artificial Silk Spinning Machines.*

J. L. Rushton, Bolton, Germ. Pat. No. 444137 (3. 10. 25, with priority of 26. 9. 25). The thread guide carrier is mounted flexibly so that the thread guide is actuated mainly straight out of the can and further kept in motion diagonally to its outward movement. The carrier consists of a four-sided jointed frame, one side of which is fixed and the opposite side carries the thread guide, while the oscillating arms are inclined to the working position of

the thread guide and swing out of this position through their intermediate position when the thread guide is moving. The joints of the frame are provided with friction devices, which maintain the frame in the position in which it is adjusted. Gl.

*Process for Winding Artificial Silk Threads.*

W. Schulz, Berlin-Lichterfelde, Germ. Pat. No. 444 437 (18. 3. 25). The threads are carried by a current of liquid horizontally against the bobbin so that the liquid runs off the bobbin, while the thread goes on to the bobbin and is wound on it. Gl.

*Thread Guides for Spinning Mechanisms for Spinning Artificial Silk Threads.*

J. P. Bemberg A. & G., Barmen-Rittershausen, Germ. Pat. No. 444 530 (27. 2. 25); Patent of Addition to Germ. Pat. No. 438 611. The thread guide rod together with its carrier tube is stuck by means of a sleeve on the outlet tube of the spinning funnel. If the outlet tube is of glass, the carrier tube is fused to the funnel. Gl.

*Wool Washing Machine.*

E. C. Duhamel & Comp. Générale des Industries Textile, Roubaix, Brit. Pat. No. 234 055 (2. 3. 25). The machine described in British Patent No. 221 521 is improved by removing the foul washing liquor and the sludge and complementing the bath liquor by purified liquid. The foul liquid and sludge are purified to recover the fat and grease. British Patent No. 256 635 (2. 3. 25), by the same inventor, relates to a wool washing machine with a succession of bowls each followed by squeeze rolls. The washing liquid circulates steadily, but is stopped occasionally to clean the bowls. The suint liquor running over is caught and returned to the bowls, the concentration of which is kept constant. Schr.

*Hackling Machine.*

T. Barbour, Belfast, Brit. Pat. No. 257 692 (16. 6. 25). The gearing which effects the rise and fall of the head is utilized to control a differential motion whereby the revolving sheets are driven at such varying speeds that the speed at which the pins pass through the material remains practically constant. Schr.

*Artificial Threads.*

G. B. Ellis & Co., London, Brit. Pat. No. 248 696 (27. 4. 25). Relates to the dry spinning process for artificial silk and is particularly applicable to the spinning of acetate silk with as rounded a section as possible and with sharp outlines without projections. For this purpose an input of heat is produced at the spinning apertures, which can be regulated

and varied with the conditions adopted for spinning. Hgl.

*Artificial Yarns.*

Société de la Soie Rhodiaseta, Paris, Brit. Pat. No. 251 580 (18. 6. 25). The threads obtained by dry spinning esters or ethers of cellulose are given a fugitive colouration to differentiate them from other textile fibres. The shading is effected before or during the reeling of the threads and either before the filaments are joined together or during this operation. Hgl.

*Device for Producing False Twist or for Removing Twist in Drafting Sliver.*

Dr. Emil Gminder, Reutlingen, Germ. Pat. No. 438 058 (23. 9. 24). The invention makes use of very narrow rubbers, like tapes, arranged either above, or below or at both sides of the threads. They engage with only one cord, so that the thread is not squeezed in even if the arrangement is double. Schr.

*Stop Motion for Spinning Machines.*

George Royden, Barksdale, Greenwood, So. Carolina, Germ. Pat. No. 438 059 (28. 10. 23). By means of an automatic locking device the stop motion is maintained in its active position when the machine stops. When the machine is again started, an automatic delaying device frees the stop motion only after the machine has been put in gear. Schr.

*Self-acting Mule with Travelling Device for Cleaning the Roller Beam.*

C. O. Langen & Co., M. & Gladbach, Germ. Pat. No. 438 060 (24. 11. 25). The screw shaft for driving the travelling cleaners stretches over only a small part of the mule and communicates its motion by means of rigid connections to cleaners, each of which sweeps over a part of the mule corresponding to the length of the screw shaft. This arrangement is very efficient and thoroughly cleans the roller beam. It is also cheap, considering the short screw shaft. Schr.

*Device for Treating Threads with Paraffin.*

C. F. Grosser, Markersdorf, Chemnitztal, Germ. Pat. No. 444 097 (23. 7. 25). The device consists of rolls of paraffin set in motion by an intermediate wheel drive and of detachable carriers for the rolls. The shaft driving the rolls ends in a stump which carries one end of the roller axle and has a slot in which a pin connected with the head of the axle of the paraffin roll is inserted. The roller axle is mounted at both ends and is removable. Gl.

*Thread Guide for Winding Machines.*

C. Tober, Berlin-Karlshorst, Germ. Pat. No. 444 250 (21. 10. 25). The thread guide is formed



by two rollers which lie close together and are provided with screw-shaped grooves, through which the thread is led alternately to and fro. Gl.

### 33. SPINNING, DOUBLING, WINDING, ROPE MAKING.

#### *Cover for Spinning Cans of Difficultly Workable Metal, in particular of Acid-proof Steel.*

J. P. Bemberg A. G., Barmen-R., Germ. Pat. No. 441 404 (4. 10. 25). As cover for spinning cans made of difficultly workable metal, in particular of acid-proof steel, a flat lid of the same material is used which sits on the rim of an upper mantle of the can and is fastened by means of a spring inserted in an inner groove of the mantle. The latter is made of an easily worked acid-proof material, such as vulcanite, artificial resin, or compounds containing artificial resin, or of celluloid. Or a lid can be used which is turned up at the edge and is laid upon the upper edge of the can which has been beaded into the form of a groove open inwards. The lid is then held fast by a spring. The inwardly open groove which receives the spring is wedge-shaped, so that the spring on extension moves along the inner wall of the groove and exerts pressure downwards. To heighten the effect, the spring is bent in two directions so that its tension is also exerted in a downward pressure. Gl.

#### *Device for Allowing Artificial Silk Spinning Machines to Run on when Changing Bobbins.*

M. Schoenfeld, Zurich, Germ. Pat. No. 441 281 (25. 10. 25). For this purpose the thread guides which can be moved axially from side to side are each furnished with an auxiliary winding body which, while retaining its displacement, is made to revolve at practically the same speed as the full bobbins. Gl.

#### *Halogenated Naphthalenes as Moth Destroyers.*

Graesser-Monsanto Chem. Works, Ltd., Ruisson, and A. M. Cohen, London, Brit. Pat. No. 253 993 (24. 3. 25). It is proposed to use sprays of 5 per cent. solutions of tri- or hexachlor-naphthalene in benzene to prevent moths from attacking textiles and furs. A suitable dipping solution is composed of 25 parts monochlor-naphthalene, 25 parts of trichlor-naphthalene, 47 parts of water, and 3 parts of oleic acid ammonia soap. Another suitable solution is a dilute solution of soap with 10 per cent. dichlor-naphthalene. Hgl.

#### *Process for Preparing Artificial Silk Threads from Cellulose Derivatives by the Dry Spinning Method.*

Société pour la Fabrication de la "Rhodiase", Paris, Germ. Pat. No. 443 414 (13. 1. 26,

with priority of 18. 9. 25). In order to regulate the temperature in the neighbourhood of the spinnerettes independently from the other parts of the spinning cell and at the same time to carry out the spinning in an atmosphere rich in vapours in a part of the cell which may be of any length, the gases which pass a middle zone are partially or completely removed from the cell and returned to it in the neighbourhood of the spinnerettes, if necessary, after having been heated. Gl.

#### *Parallelization of Textile Fibres.*

G. C. Laurency, Twickenham, Brit. Pat. No. 248 475. In order to parallelize completely the fibres of the web leaving the card, a number of small cylinders are arranged close to the doffer, the first of which has a higher speed than the doffer and removes the fibres from it. This cylinder works together with a carding plate and pulls the fibres parallel. The second cylinder runs faster than the first and passes the fibres from it to the next cylinder which is the fastest of the three. The carding plate of each cylinder must be longer than the staple of the fibres, otherwise they will be torn. The draft rollers should be covered with leather or some material with the same action. Gl.

#### *Process and Device for Precipitating the Copper Sediment from the Precipitating Bath in the Manufacture of Artificial Silk.*

Hölkenseide G. m. b. H., Barmen-R., Germ. Pat. No. 443 089 (25. 9. 25). The liquid containing the sediment is filled into large vessels with porous walls through which the liquid percolates, while the copper sediment settles out. The process is hastened partly by removing the upper layers of the liquid, partly by evaporation till the sediment is so thick that it contracts and separates automatically from the walls of the vessel. It is then removed from the vessels, through an opening near the bottom, by any suitable means. Gl.

#### *Machine for Tearing Hemp and Other Bast Fibres into Pieces of a Definite Length.*

J. Knox, Dalty, Scotland, Germ. Pat. No. 443 411 (11. 3. 25). (Priority of 24. 12. 24.) This is effected by passing the fibres between two groups of rollers, one group of which is driven continuously and the other intermittently. The latter group is driven by a chain provided with a catch which intermittently engages with a spur wheel which actuates one of the rollers. Gl.

#### *Process for Forming Cellulose in Ribbons with a Round Rolled Cross-section.*

Herminghaus & Co., G. m. b. H., Dr. L. Hesse and Dr. Battsert, Vohwinkel, Germ. Pat. No.

441 363 (25. 10. 21). Ribbons of this type are intended as a substitute for tagal sisal, hemp, and the like. They are prepared from the ribbons made by slit spinnerettes in the usual way, wound on a swift and after-treated in hank form. Gl.

*Flax Breaker with a Number of Small Rollers Arranged Around a Large Roller.*

A. Löpki, Krokau, East Prussia, Germ. Pat. No. 443 412 (26. 11. 25). A diverting surface of the same length as the large roller is arranged between each pair of the smaller rollers in such a way that it can be taken out. Gl.

*Device for Regulating the Spinning Pressure in Artificial Silk Spinning Machines.*

A. Levy, Cricklewood, Brit. Pat. No. 248 468. In order to regulate the spinning pressure, a diverting channel is provided parallel to a pump of the infinite piston type. A very sensitive regulating valve is fitted in this canal so that the pressure of the spinning liquid can be adjusted according to the free cross-section passage of this valve. Gl.

*Spinning Nozzles.*

L. A. Levy, Cricklewood, Brit. Pat. No. 255 261. The invention relates to nozzles composed of a glass capillary tube connected with a stouter piece of tubing for embedding in the body of the nozzle. In order to produce a uniform flow from the nozzle, water under pressure is pressed through the capillaries while grinding, which is continued until the flow is the same from all capillaries for the same period. Gl.

*Winding Arrangement for Artificial Silk Spinning Machines.*

Boyd Ltd., Glasgow, Brit. Pat. No. 254 586. The winding machine works on the flyer system with driven bobbin and flyer, so as to wind the bundle of threads extruded from the spinning nozzle on to bottle bobbins giving it at the same time twist. Bobbin and spindle are driven by bevel gearing. The bobbin spindle and flyer spindle are given independent axial adjustments, not only to form the coneshaped winding of the layers of yarn, but also to alter the relative position of bobbin and flyer as the former fills up. Gl.

*Process for Preparing Artificial Threads.*

C. B. Linkmeyer, Bad Salzuflen, Germ. Pat. No. 443 413 (7. 2. 25). To prepare artificial threads, in spinning the endless bundle of threads, each is made thinner at certain places and broken into short fibres at the weak spots by applying tension to the thread bundle. The thin places can be made by

reducing the diameter of the thread or by means of a revolving shutter on the inner side of the spinnerette which closes all the holes in turn, but only a few at a time. The shutter may also be stationary, while the spinnerette revolves. Gl.

*Thread Guide for Spinning Can Machines.*

F. Sieghcim, Berlin, Germ. Pat. No. 443 415 (3. 7. 26). A roller is loosely inserted at the end of the guide tube and is caused to revolve by the thread passing out, so that the pull of the thread always makes it lie obliquely corresponding to the direction of the thread. The space between the expanded edge of the cylinder and the neighbouring upper narrowing of the tube is just so large that the thread cannot lodge between them. Gl.

*Preparation of a Cop Consisting of Doubled Linen and Hair Threads.*

Emmcluth & Co., Landeshut, Germ. Pat. No. 443 244 (30. 10. 25). In order to form a cop of this type for weaving padding fabric for clothing, the linen thread is roughened before it is doubled and wound by passing it through fluted rollers, or by boiling it. Gl.

*Arrangement for Preventing Spinnerettes from Becoming Choked and for Maintaining the Strength of the Thread.*

Siemens-Schuckertwerke G.m.b.H., Berlin, Germ. Pat. No. 442 515 (26. 10. 24). The spinnerettes are prevented from becoming choked and a uniform thread is secured by setting a throttle arrangement before each spinnerette and bringing the spinning fluid from a reservoir under a uniform pressure higher than the spirt pressure to the spinnerettes. Further before the throttle arrangement filters are inserted whose resistance to the passage of the fluid in comparison to the pressure acting upon them is low. Uniform pressure is obtained, for instance, by the action of a piston which is weighted and acts either directly or indirectly upon the spinning fluid in the reservoir. Or a centrifugal pump can be employed as a superpressure reservoir which permits of a definite maximum pressure being maintained. Gl.

*Thread Guide Arrangement for Spinning Equipment for Artificial Silk Threads.*

J. P. Bemberg A.-G., Barmen, Germ. Pat. No. 438 641 (3. 2. 25). The spinning arrangement is immovably attached to its guide rod which leads the thread to the winder. This is done by attaching immovable carriers to the lower part of each spinning arrangement in which the guide rod lies as in a bearing block while the small exit tube is led in a slotted bridge parallel to the thread guide rod. Gl.

*Transporting Artificial Silk Threads from the Precipitating Bath to the Spinning Can.*

Rudolf Bader, Mährisch Chrostau, Czechoslov. Pat. No. 11 157. The artificial silk threads are led through a channel with a funnel-shaped inlet. This channel has a bent section lengthways at the place where the thread passes through, in the depressions of which the thread comes into contact with the interior wall of the channel. The line connecting these depressions may be straight or crooked.

Dr. K.

*Drive for Spinning Cans for Artificial Silk.*

Siemens & Co., Kommandit-Ges., Prague, Czechoslov. Pat. No. 14 245. The motor driving the spinning cans is so suspended in the spinning frame that the vibrations due to the revolution of the can are zero or practically zero at the point where the thread leaves the can. This is done because this point of exit is as near as possible to the middle of the ball-shaped suspender. The vibrations of the motor are checked by suitable means and the motor together with the spinning can and its accessories is arranged on a plate set upon the openings of the spinning frame. The motor is in a casing ventilated with fresh air in which superpressure is produced by the ventilation so that acid fumes cannot enter it. Besides this, the motor is protected against the penetration of acid fumes by a packing round the shaft. Dr. K.

*Process for Finishing Textile Fibres, Cellulose, and Artificial Silk.*

Josef Pokorny, Providence, Czechoslov. Pat. No. 14 260. Concentrated formic acid is used, which causes hydration. It can be applied at a high temperature and the fibres may be subjected to tension to enhance the lustre.

Dr. K.

*Process for Preparing Artificial Silk Threads from Viscose.*

Dr. Franz Steimmig, Dr. Hans Karplus, Erste Böhmisches Kunstseidefabrik A.G., Theresienthal near Arnau, Czechoslov. Pat. No. 17 653. A precipitating bath is used which contains other than equivalent quantities of sulphuric acid and sodium sulphate in an aqueous solution of molasses or residual liquor. A viscose silk of 120 to 150 deniers, for instance, can be spun in a bath composed of 20 parts molasses, 24 parts  $\text{Na}_2\text{SO}_4$ , 9 parts  $\text{H}_2\text{SO}_4$ , and 47 parts of water. This contains 11% more  $\text{Na}_2\text{SO}_4$  than corresponds to the equivalent proportion of  $\text{H}_2\text{SO}_4$  and  $\text{Na}_2\text{SO}_4$ . For spinning fine threads of 2–3 deniers (single count), a spinning bath containing 15 parts residual liquor, 12 parts  $\text{H}_2\text{SO}_4$ , 14 parts  $\text{Na}_2\text{SO}_4$ , and 59 parts of water. has proved efficacious which contains 2–3%

$\text{H}_2\text{SO}_4$ , above the equivalent proportion of  $\text{Na}_2\text{SO}_4$  and  $\text{H}_2\text{SO}_4$ .  
Dr. K.

*Process for Preparing Artificial Silk Threads from Viscose.*

Dr. Franz Steimmig, Dr. Hans Karplus, and Erste Böhmisches Kunstseidefabrik A.G., Theresienthal near Arnau, Czechoslov. Pat. No. 17 654. A precipitating bath is used which contains one or more salts of polyvalent metals soluble in water dissolved in an aqueous solution of sulphuric acid, and molasses, or residual liquor, in the presence of, or without sulphates of the alkali metals, or of ammonium sulphate. The presence of these latter is not indispensable. A bath composed of 22 parts  $\text{Na}_2\text{SO}_4$ , 15 parts  $\text{MgSO}_4$ , (7 aq.), 11 parts  $\text{H}_2\text{SO}_4$ , 15 parts molasses, and 37 parts of water, or a bath of 5 parts residual liquor, 45 parts  $\text{MgSO}_4$ , (7 aq.), 17 parts  $\text{H}_2\text{SO}_4$ , and 35 parts water has been found useful. As examples of salts soluble in water are mentioned: chlorides, sulphates, nitrates of iron, aluminium, magnesium, and cerium nitrate. Besides these, sulphates of the alkali metals and ammonium sulphate may also be present, but this is not absolutely necessary.

Dr. K.

*Device for Supporting Fibres of Artificial Silk which Crowd Together in the Spinning Can.*

Rudolf Bader, Mährisch Chrostau, Czech. Pat. No. 10 107. A spring ring is introduced into the heap of fibres which tends, owing to its elasticity, to expand to its full extent without being able quite to jerk upwards. This is attained by providing one end of the ring with slots in which pegs inserted in the other end can move. By expanding the upper end with the pegs, these lie continually in the slots. The elasticity of the ring causes it to lay itself at the inner wall of the heap of fibres and supports them during winding so that no material is lost. Besides this, the ring is prevented from opening completely by being jerked up, so that the fibres are not stretched towards the end of the process and do not injure the neighbouring heaps of fibre.

Dr. K.

*Waste Delivery Machine for Combing Machines.*

Alsatian Machine Works Ltd., Boston, Brit. Pat. No. 256 072 (7. 9. 25). Two brushes enclosed in a casing remove the waste from the two cylindrical combs and throw it down towards two rotary drums situated at the bottom of the box. Each drum comprises an outer perforated cylinder and an inner cylinder with a slit lengthways, through which air and dirt can be drawn by suction. The waste is compressed between the two cylinders and fed out from the box.

Schr.

*Driving Mechanism for Doubling Frames for Making Knopped Yarns and Fancy Threads.*

H. Hogg, Meltham near Huddersfield, Brit. Pat. 256 342 (14. 5. 25). The central shaft driving the delivery rollers carries three gear wheels, so that they can be driven at any of three speeds. These gears are rotatively connected automatically with the driving shaft by the action of a pattern chain fitted with bowls. The pattern of the yarn is thus determined by the pattern chain. Schr.

*Sizing Mechanism for Twine Doubling Machines.*

E. Guillemaud, Fr. Pat. No. 607 849. The size is contained in an egg-shaped box which has a number of channels at the side through which the fibres to be twisted are led and thereby sized. Schr.

*Cop Winding Machines.*

J. D. Joyce, Philadelphia, Brit. Pat. No. 233 312 (23. 2. 25). The machinery winds double tapered cops. To regulate the taper of the winding and the size of the cop, an adjustable tapered shaper is arranged at both sides of the spindle and revolves with it. Schr.

*Quick Traverse Winding Frame.*

L. Pivot and L. Villot, Roanne, Brit. Pat. No. 255 676 (15. 9. 25). The spindle is reciprocated axially by means of a stationary cam which engages with a crankpin mounted on the spindle. The extent of the reciprocation can be adjusted and the cam is of such a form that the reciprocating movement is of constant speed. Schr.

*Electric Drive for Spinning Machines.*

A. and J. Stell, Keighley, Brit. Pat. No. 255 986 (19. 5. 25). The motor is mounted on a special stand upon the machine frame so that it does not obstruct any part of the spinning machine and its own driving belt is not obstructed. Schr.

*Brake for Flax Doubling Frames.*

E. Guillemaud, Fr. Pat. No. 607 556. Instead of the irregular braking of each bobbin by means of a cord with a weight, all the bobbins are braked simultaneously and evenly by applying a brake to the common driving shaft which drives the bobbins by gearwheels. Their speed is slackened by a brake mounted at the end of the machine. Schr.

*Cop Winding Machine.*

J. Kappler and W. Hirt, Fr. Pat. No. 608 032. The cop is wound on a vertical spindle which rises as the size of the cop increases. The cop lies between two conical discs with an inclined axis which run in different directions and grip the cone of the cop between them

so that they gradually press it up as it fills and finally, when it is full, stop the spindle. One of the discs is eccentric and acts a thread guide along the cone of the cop. In a modification both discs are centered and a special up and down thread guide is provided. Schr.

*Spinning Nozzles.*

C. L. Walker, Aberdeen, Brit. Pat. No. 253 209. The spinning nozzle consists of a nozzle plate of some material not a noble metal, in which the spinnerettes in the form of capillaries of noble metal are embedded by means of a fused mass. These capillaries are made by drawing rods of a non-noble metal core plated with a noble metal. After embedding the rods in the nozzle plate the cores are dissolved out with nitric acid. The cross-section of the capillaries can be given any desired form by shaping the core of non-noble metal as required. Gl.

*Spindle drive.*

Soc. Als. Constr. Mecan., Mulhouse, Brit. Pat. No. 249 102. The invention relates to a drive for spindles with an inclined axis, several of which are driven by a common belt or tape. The belting is led by pulleys in such a way that the driving part of the belt is approximately vertical to the axis of the spindle. Gl.

*Winding Machine.*

J. O. McKean, Hampden, Mass., U.S.A., Brit. Pat. No. 243 319 (21. 9. 25). The machine is so constructed that the crosswinding cams and their shafts are readily accessible without having partly to dismount it. For this purpose the bobbin carriers can be moved by hand beyond their position at rest, independently of their drive, and the bobbin driving pulleys are also movable by hand, so that the cams and shafts are accessible. Schr.

*Cards.*

C. Gegault, Mulhouse, Alsace, Brit. Pat. No. 246 499 (22. 1. 26). The function of the card is to sort out short fibres and for this purpose a small rapid roller covered with card clothing is provided under the doffer which takes the lap from the swift and by its rapid rotation throws the short fibres down below into a container while retaining the long fibres. The purified lap is taken by another cylinder of the same size from the rapid roller and brought back to the doffer, from which it is removed by the stripping comb. Schr.

*Device for Cleaning Cards by means of Adjustable Suction Nozzles.*

Siemens & Co., Kom.-Ges., Prague, Czech. Pat. No. 16 609. The pipe is attached to the

adjustable nozzles in such a way that it can be swung out, by the aid of a suction junction pipe which can be rotated and may be provided with a ball joint. The tubing can also be attached to the air port in such a way that it can be rotated out.

Dr. K.

#### *Pressure Roller for Spinning Machines.*

J. Lauffer, Logelbach, Alsace, Brit. Pat. No. 235,890 (17. 1. 25). The pressure roller is hollow and is mounted on a shaft which runs in ball bearings. The journal has two ring grooves for the balls which are kept in position by the end sleeves of the casing. The sleeves are closed by packing to prevent the entry of dirt.

Schr.

#### *Thread Guide Drive for Cop Winding Machines.*

R. Voigt, Maschinenfabrik, Chemnitz, Germ. Pat. No. 444 465 (6. 8. 25). Each thread guide is driven by itself by means of a thread guide roller with a lateral curved groove in which a control roller of the oscillating arm of the thread guide engages.

#### *Swift with Radially Movable Bars.*

J. P. Bemberg A.-G., Barmen-R., Germ. Pat. No. 444 629 (4. 10. 25). The frame of the swift is formed by set cross staves and the star, while a number of the staves are adjustable radially and are connected by swivels with the shaft of the swift which is mounted in the set frame and is axially adjustable. The bars are locked in their spread-open position by means of the guide swivels which have been pushed up to the star of the swift beyond the dead centre.

Gl.

#### *Process for Making Fine Woollen Yarn.*

British Research Association for the Woollen and Worsted Industries and Henry James Wheeler Bliss, Leeds, Ger. Pat. No. 441 418 (12. 11. 22). To make woollen yarn with a fine count out of coarse yarn, it is strongly stretched after spinning while in a wet or moist condition. At the same time moist heat is applied to prevent the yarn drying before the stretch has become permanent, as it does after having been dried.

Gl.

#### *Table Movement for Ring Spinning Frames.*

Ernst Gessner A.-G., Aue i. Erzgeb., Germ. Pat. No. 441 512 (11. 7. 25). Ring spinning frames have sometimes to make long warp cops and sometimes short weft cops, and the movement of the table traverse must be altered accordingly, so that it is always in the correct initial position for the different lengths of cops. For this purpose tongs are formed by two levers jointed together and the ends of its legs are inserted in the motion which works the rising and falling

movement, while the limbs themselves are provided with a screw the nut of which is formed as a hand wheel, a simple turn of which serves to adjust the device.

Schr.

#### *Spinning Machine for the Production of Core Yarn.*

Albert Hirschmüller, Miesbach, Germ. Pat. No. 442 055 (29. 8. 25). The cover is wound like a ribbon onto the core yarn as it is being rotated. Besides being passed through pressure and feed rolls the pressure roller is covered with depressions which press the cover into the core. Core and cover are led over and united on a curved plate upon which the core is pressed.

Schr.

#### *Method of Adjusting the Thread Guides on Winding Machines.*

A. Thévenot, Fr. Pat. No. 613 159. The winding machine is arranged to wind cylindrical as well as conical bobbins. For this purpose the thread guide is driven by two different cams which impart to it a regular or irregular speed. By a special device the cams can be put into or out of action.

Schr.

#### *Safety Device for Spinning Machines.*

Société Toulemonde, Fr. Pat. No. 614 296. The device is used to double bar the gates which shut off the drives of spinning and other machines when in motion. The gates are freed only when the machine is stopped.

Schr.

#### *Filters for Artificial Silk Spinning.*

Lunge & Courtaulds Ltd., London, Brit. Pat. No. 248 044. The filter is formed as a disc filter. In order to utilize the whole of the filtering surface as fully as possible, each half of the filter body between which the filtering medium is spread out is provided with a labyrinthine canal for the inflow of the liquid to be filtered. The surface covered by the filtering material is many times greater than the cross-sectional areas of the supply and delivery pipes for the liquid to be filtered.

Gl.

#### *Bobbin Bearing.*

Compagnie d'Applications Mécaniques, Paris, Germ. Pat. No. 444 177 (15. 11. 23, priority from 8. 10. 23). The rotatable shapers which carry the bobbins are mounted in ball bearings and one of them is movable axially. Its stem forms a part of the corresponding ball bearing and is mounted together with the latter in a stationary guide of the carrier of the ball bearing, both being movable in the direction of the bobbin axis. According to a modification the stem of the shapers which take the bobbin between them is constructed as a bush in which the ball bearing is adjustably mounted.

Gl.

*Adjustable Swift.*

F. Pawlik sen. and F. Pawlik jr., Rorschach, Switzerland, Germ. Pat. No. 444 251 (6. 11. 25). The yarn-carrying arms of the swift are constructed as elastic steel bands and can be adjusted lengthways by means of bands wound on a drum. Gl.

*Flat Card.*

The British Cotton Industry Research Association of Manchester and Platt Brothers and Company Ltd., Oldham, Germ. Pat. No. 441 256 (17. 4. 25). In a flat card with short length of flat and two lickers in which work after one another and are fitted with mote knives, the lickers in are so arranged below one another that the material is led at an angle to the second and this last cylinder upon the upper part of the swift gives up the material to the latter. By this means the card can be much shortened and the free space of the swift is utilized as much as possible. Schr.

*Electrically Driven Flyer.*

Dr. Heinr. Schneider, Lenzburg, Switzerland, Germ. Pat. No. 441 305 (1. 6. 24). In the flyer the thread is led from the delivery roller while being often or continually diverted vertically or almost vertically, into the hollow shaft of the motor. By this means there is a certainty that the twist of the thread will be continued directly up to the delivery roller, so that the thread can take up the pull required to drive a self-braking bobbin. To keep this pull as low as possible, the braking of the bobbin must be reduced as far as may be. For this purpose the whole length of the bobbin is not laid upon the dead spindle, but the upper part of the spindle is removed, so that merely a lower annular surface is left to set up the bobbin holder. The spindle is bored on the top and a peg which fits into the hole is attached to the bobbin holder. Schr.

*Appliance for Automatically Regulating the Motor Speed of a Ring Spinning Machine.*

N. V. Fabriek van Electriche Apparaten voorheen F. Hazemeyer & Co., Hengelo (O), Holland, Germ. Pat. No. 441 307 (5. 2. 25). An eccentric disc, the form of which is derived from the form of the cam of the traverse of the ringrail of the ring spinning frame, works in conjunction with a guide lever provided with two rollers, the motion of the lever being transmitted to the gearing for the electromotor brushes. By this comparatively simple means the tension of the thread is kept as uniform as possible during spinning. In order to be able to regulate the change motion as easily as possible, the pivot of the guide levers with which the transmission lever engages is adjustable lengthways to the guide lever. Schr.

*Arrangement for Automatically Stopping the Supply of Roving to Spinning Machines when the Thread Breaks.*

Alexander Groundwater Walls and Rogvald Nicholas Walls, Ashton-on-Mersey, Germ. Pat. No. 439 491 (7. 4. 25). The knocking-off motion releases a gripping device for the roving and an arrangement which pushes the roving out of reach of the nip of the guide rollers. The feeler arm of the knocking-off motion is influenced by a spring tipping motion so that it strikes out more strongly when the thread breaks. The drives for the gripper motion and the pushing-off motion, when released, engage with a mechanical drive which is continually in motion. Schr.

*Arrangement for Pressing Tubes on to the Spindles of Spinning Machines.*

Ernst Toenniessen, Tübingen, Germ. Pat. No. 439 533 (12. 1. 26). The device consists of a rotatable wheel mounted on a handle. The rim of the wheel is rolled over the tubes stuck on the spindles. Schr.

*Arrangement for Holding Apart Broken Threads in a Spinning Machine.*

Ivan Linon and Joseph Dethier, Ensival, Belgium, Germ. Pat. No. 439 679 (5. 3. 26). Every automatic spinner or every frame which continually spins is provided with one or two independent blowers which produce moist compressed air. The blowers are independent both of one another and of the arrangements of neighbouring spinning machines and circulate the moist air practically in a closed circuit for each machine so as to prevent a strong return air current. Schr.

*Draft for Flyer Frames and Fine Spinning Machines.*

Albert Georg Koechlin, Basle, Germ. Pat. No. 439 680 (4. 3. 25). The draft is furnished with leather tapes and a guide for the tapes by means of suitable rollers or other guide members. The tape guide has hitherto been practically direct at the leather itself, which means a fairly stiff tape; in the new arrangement the tape is guided by pressing the guide roll with elastic pressure radially against the draft roller carrying the tape. By this means even a soft leather owing to the draft is made taut from the place of the nip and clings properly to the drafting roller. Schr.

*Process for Importing a Wave to Smooth Artificial Silk Fibres.*

Lilly Müller, Berlin-Dahlem, Germ. Pat. No. 439 681 (19. 2. 25). The fibres are first allowed to swell up slightly and are then pressed against one another or pressed between fluted calender bowls, which may be heated, if desired, and then dried. Schr.

*Split Drum for Quick Traverse Winding Machines.*

Franz Müller, Maschinenfabrik, M. Gladbach, Germ. Pat. No. 439 955 (20. 6. 26). The invention permits of the use of a wide slit. By means of guides of wire or iron inside the drum at the return points of the slit the thread is led or pulled against the inner edge of the slit, so that there is no room for the thread to balloon. By this means the sides of the cheeses wound are more exact. Schr.

*Diverting Arrangement for Equipment for Transporting Fibrous Material by means of Compressed Air.*

Paul Pollrich & Co. G. m. b. H., Düsseldorf, Germ. Pat. No. 440 149 (19. 4. 25). The corresponding valves of the dust-removing and transport systems are firmly mounted on a common rotatable shaft which crosses both the air paths in the same way. They are thus united to form a single diverting arrangement for both systems without intermediate parts. The arrangement can be used not only to throttle two simple systems of tubes, but also to connect in parallel whole systems of pipes with any desired number of branch lines, by building them in at the various places where they are to be diverted. Schr.

*Process and Means for Batching Textile Fibres.*

Fritz Rösler, Hemelingen near Bremen, Germ. Pat. No. 440 215 (17. 2. 26). The strick knots are led suspended and each knot is at the same time turned about its long axis and sprayed from both sides. The arrangement consists of two endless aprons which run over guide rollers and hold the strick knots between them. The apron can be adjusted and the spraying nozzles are arranged at both sides.

*Arrangement for Stopping Electrically Driven Textile Machines, in Particular Spinning Machines.*

Jakob Spanjaard, Borne, Holland, Germ. Pat. No. 440 481 (13. 8. 24). The interrupter contacts for the current circuit for the magnet do not lead to a disengaging lever, as usual, but are mounted at the motor switch and only closed when this is switched on. It is advisable to mount the contact on the shaft of the switch cylinder so that a no-load run is avoided and the arrangement works here also with the utmost reliability. The invention guarantees exact operation of the stop motion, because the current circuit for the cut-off magnet is compulsorily switched on whenever the machine is at work and switched off when it is standing still. Schr.

*Traveller for Ring Spinning and Doubling Machines.*

Emil Stutz-Benz, Landsberg a. W., Germ. Pat. No. 440 686 (13. 8. 24). The traveller is furnished in the usual way with a hook as a thread guide. The hook has two contact points for the yarn so that it is twice deflected. From the first point of contact with the hook, the yarn cannot approximately reach the winding surface at right angles, but comes first from the second guide which is placed so much lower that the yarn forms an obtuse angle at both places. Schr.

*Arrangement for Applying Oil and Paraffin Simultaneously to Yarn by the Use of an Oil Container and a Paraffin Core Laid above It.*

Schemag Maschinen- und Apparate-Fabrik Dr. Schenderlein & Co., Leipzig, Germ. Pat. No. 440 744 (7. 6. 25). The oil supply is actuated by the pull of the yarn. The device consists of a tube in which oil rises and which ends in the paraffin carrier attached to it. The tube is actuated by the friction of the thread on the paraffin carrier and rotates round an oil supply screw which is fixed in the oil container. Schr.

*Electric Individual Drive for the Spindles of Spinning Machines.*

Dr. Joseph Berlinerblau, Warschau, Germ. Pat. No. 441 045 (25. 9. 25). The individual drive of spindles meets with great difficulty, as is well known, because the spindles are set very close together and there is little space left to arrange the motors in the machine. The present invention overcomes these difficulties by arranging the various motor casings at different heights on the spindles. Schr.

*Drawing Rollers.*

Fer. Weele, St. Dié, Brit. Pat. No. 259 345 (13. 8. 25). The upper rollers of the middle and back pairs of rollers are arranged slightly behind the lower rollers, so that the plane through the axis is oblique. Smaller rollers of iron with a soft cover lie upon the lower rollers in front of the upper rollers and lead the slubbing between the drawing lines of the pairs of drawing rollers.

*Driving Spinning Spindles.*

Brooks & Doxey, Ltd, Union Iron Works, Manchester, Brit. Pat. No. 257 070 (18. 7. 25). The tensioning pulleys of the spindle driving tapes are mounted so that their direction of rotation as well as that of the spindle can be reversed by an adjustment controlled from the end of the machine. Schr.

*Shields for Mule Spindles.*

Platt Brothers & Co., Ltd., Oldham, Brit. Pat. No. 257 075 (25.7.25). The wood ribs at the front of the upper spindle rail of a mule are fitted with bands of felt which project upwards for seven-eighths of an inch, so as to protect the attendant from the oil thrown by the revolving spindles. The felt must be so stiff that it cannot be injured when doffing or adjusting cops. Schr.

*Stop Motion for Cards.*

Société Platt Frères and M. Fornise, Fr. Pat. No. 616 178. The device is intended to stop the card when a hard object gets into the freed rollers. The foreign body lifts the roller which sets a locking arm in motion by means of a number of levers and stops the machine. Schr.

*Spindle Drive for Artificial Silk Doubling Machines.*

Société Alsacienne de Constructions Mécaniques, Mulhouse, Fr. Pat. No. 615 331. The spindles are driven singly, or in groups of two, three, or four, by belts, ropes, or cords which are led over the driving drum lying in the middle of the machine, and a tension drum parallel thereto. The tension drum is mounted movably and makes the belts taut under the influence of a weight acting upon its bearings. Schr.

*Spindle Brake for Artificial Silk Doubling Machines.*

Société Alsacienne de Constructions Mécaniques, Mulhouse, Fr. Pat. No. 615 336. Each spindle is fitted with a brake which is held in braking position so that the attendant has both hands free for work on the bobbin. Schr.

WEAVING, SIZING, AND PREPARATION.

*Velvet Loom.*

Gebr. Schoeller, Düren, Rhineland, Germ. Pat. No. 438 765 (16.4.25). Considerable resistance is encountered especially when beginning the motions for pulling out and inserting the wires, so that a loom of this type has hitherto needed a drive the strength of which was quite out of proportion to the average consumption of power. According to the present invention this disadvantage is avoided by providing a special wire drive which sets the wires in motion either alone or together with the loom drive which actuates all the other parts of the loom. In the latter case the wire auxiliary drive in conjunction with the loom drive starts the pulling out and insertion of the wires by a series of jerks, and the wires are then brought by the loom

drive alone to their final positions. An electric motor can be used which either runs constantly, or is only switched on during the knocking motions by means of a drum switch, but which at other times is not supplied with current. Further the electric motor of the independent pile wire drive is switched off when the wires are in their final position by means of a drum switch, or the like, operated by the loom drive, and at the same time the wire motion is brought to a standstill by a brake magnet. Hac.

*Removing Fly from Looms and Textile Fibre Machinery, etc.*

Dr. Emil Gminder, Reutlingen, Germ. Pat. No. 441 420 (1.11.25). A revolving gripper catches the collection of fly, e. g. on the warp stop motion and leases, twists it, and pulls it away. Hac.

*Warp Protector Motion with Independent Feeler Levers for Looms Fitted with Stop Rod Device.*

Alfred Colin, Barembach, France, Germ. Pat. No. 441 360 (20.5.25). The feeler levers are mounted on a collar bush attached to the stop rod shaft so that they are free to rotate and their hub is provided at one side with stops, or the like, which engage correspondingly in counterstops or slots of a carrier bush keyed on to the stop rod shaft. Suitable adjustments are provided for accurately setting the feeler levers to the stop rod shaft and its shuttle box swell. The feeler levers are returned automatically to their rest position by means of plate springs. Hac.

*Jacquard Harness Link.*

T. Ryffel-Frci, Zurich, Brit. Pat. No. 246 705 (11.5.25). To enable the proper connection of neckcords and hooks in double-lift jacquard machines with ease and securely, the link is formed of wire in the shape of a triangle. The two upper projecting parts each receive a hook and the ends of the legs of the loop are bent round to enable a neckcord to be hung in the bends by means of a slip-knot. Hac.

*Loom Stop-motion Drop Wires.*

O. J. Player, Rockingham, U.S.A., Brit. Pat. No. 245 724 (29.6.25). The drop wires are each mounted by means of a longitudinal slit on a common rail and have a lateral projection at the upper end by means of which, when a thread breaks, the drop wire may be raised again. Hac.

*Double Pile Fabric.*

E. Hollingworth, Dobcross Loom Works, Dobcross, Brit. Pat. No. 240 672 (21.11.24). When two or more differently coloured pile



threads are used in the upper and lower texture, the pile threads changing between upper and lower fabric are specially interlaced in connection with upper and lower binding warp threads, filling warp threads, and filling picks.  
Hae.

*Process and Apparatus for Folding Cloth.*

W. Grus, Provebrad, Czech. Pat. No. 17 570. The cloth is steamed and ironed between two forms of pleating paper in folds which lie and stand on the ironing plate. The apparatus for preparing the forms of pleating paper folds the paper by means of two knives, the lower of which is fixed while the upper is actuated by a lever and a cam actuated by a hand-lever.  
Dr. K.

*Spring Shuttles of Wire.*

C. Wolfrum, Aussig, Czech. Pat. No. 5680. The basis of the shuttle is wire with insertions of wood or other material between the wire and in front of the tip which serve as the walls of the shuttle. The shuttle is further braced by u-shaped strips of sheet metal near the tips which serve to support the strips of wood. They act further as a running surface and as connections for the metal braces owing to bottom assuming a flat cross-section.  
Dr. K.

*Substitute for the Slay Strap of Under Pick Looms.*

August Walzel, Halberstadt, Bohemia, Czech. Pat. No. 7782. A flat spring is attached to the slay shaft, or on the rotating pivot of the vertical picking stick. The free upper end of the spring acts as a brake on the return motion of the picking stick and the shuttle.  
Dr. K.

*Substitute for the Buffer of Under Pick Looms.*

August Walzel, Halberstadt, Bohemia, Czech. Pat. No. 7783. One side of a flat spring is attached to the slay or to the vertical picking stick in such a way that certain nearer portions of the spring absorb the blow of the picking stick owing to the rolling motion of the spring attachment which is set up. The movement of the picking stick is consequently braked with increasing force and without a jerk.  
Dr. K.

*Picking Strap Mechanism for Under Pick Looms.*

August Walzel, Halberstadt, Bohemia, Czech. Pat. No. 7784. The mechanism consists of flat springs and is therefore elastic, whereby the parts which directly or indirectly take part in the pick are treated gently and their life is consequently lengthened. Further a spring

loop is clamped on one side of the picking stick, preferably in a hanging position.

Dr. K.

*Picker for Power Looms.*

Cölestin Rosenberg, Märzdorf near Braunau, and Franz Paulitschke, Roth-Kosteletz, Czech. Pat. No. 7790. The picker is formed of two half-loops of leather enclosed in a hard cap of artificial leather, or the like, with a soft bolster of chrome leather inserted between. A similar bolster is provided on the bow side. There is further described a form of cap for combination pickers in which the striking head of the cap is strengthened by splitting off the legs and turning over and pressing the head.  
Dr. K.

*Pile Fabrics.*

Brown Vickers & Co., Ltd., and S. H. Vickers, Bradford, Brit. Pat. No. 245 973 (16. 3. 25). To give a brighter and more decorative effect to moquette or similar warp pile fabric, artificial silk is introduced into the warp pile either alone or associated with other fibres.  
Hae.

*Warp Stop Motion with at Least Two Vibrating Combs Arranged Close to One Another across the Warp.*

N. V. Exploitatie Maatschappij voor Textielindustrie Auerbach & Co., Haag, Holland, Germ. Pat. No. 441 311 (26. 8. 25). The invention aims at a very simple construction with as few movable parts as possible, so as to prolong the life of the mechanism and ensure efficient working. For this purpose an oscillating cam driven by the loom shaft acts as a yielding coupling with a catch bolt which is pressed elastically against it. The bolt lies in a longitudinal groove of the driving lever of the movable vibrating comb, while the lever is mounted loosely movable on the shaft of the oscillating cam. The bolt engages simultaneously with a movable member connected with the stop motion on a curved piece which stretches over the oscillating field of the bolt.  
Hae.

*Stop Device for the Picking Bowl of Over Pick Looms.*

Hugo Huth, Meerane, Saxony, Germ. Pat. No. 441 310 (25. 11. 25). The invention consists in attaching the buffers to a piston which is mounted in an adjustable casing and furnished with springs. The device is attached to both sides of the loom frame and serves to intercept, by means of the piston, the hard blow produced by the picking stick and to deaden it still more by a layer of pigskin, vulcan fibre, brown leather, rubber, or felt. By this means all the picker parts are treated very gently and the loom runs almost noiselessly.  
Hae.

*Velvet Cutting Wire for Looms with an Interchangeable Knife Mounted in the Knife Holder.*

The Lox Seal Corporation, Brooklyn, U.S.A., Germ. Pat. No. 441 312 (10. 6. 25). As a stop for the knife a tongue is bent from the usual spoon-like prolongation of one of the walls of the knife holder at such a distance from the front end of the shorter lateral wall that the knife can be bent and thus be inserted or removed over the tongue. The tongue is bent in such a way that the free end lies backwards and a space is left between it and the other wall for the introduction of a knife provided with a slot, and hinders the movement of the knife forwards. The stop for the knife backwards is formed by an insertion with a bottom which runs slanting forwards and upwards, or by squeezing together the walls of the knife holder along a line which runs obliquely upwards and forwards. The ends of the side walls when soldered to the wire are also soldered to one another, because they are either squeezed together or touch the insertion so as to make a strong connection for the holder and strengthen it. Hae.

*Cutting Wire for Pile Looms.*

The Lox Seal Corporation, Brooklyn, U.S.A., Germ. Pat. No. 441 735 (10. 6. 25). According to this invention an interchangeable knife is positively held between the walls of the knife holder so that it cannot move lengthways. One of the walls in front is higher than the other and the projecting part is fitted with a tongue which acts as a knife stop. This tongue stretches from the inside of the spoon-shaped prolongation obliquely forwards into the path of the knife. When the knife moves beyond the tongue and into its stop position, the front end of the tongue engages with the edge of a cross-slit in the knife and thus hinders it from moving backwards, while movement forward is prevented by the well known oblique cross partition. Hae.

*Attachment for Looms for Twisting Fringes.*

Gebr. Siepmann, Barmen, Germ. Pat. No. 437 906 (11. 10. 25). The invention relates to an arrangement for twisting fringes for looms, crocheting machines, or the like, in which the twisting hook is driven by a rack moved backwards and forwards through a toothed wheel countershaft. The invention consists first of all in a switch built in the countershaft which acts only when the rack is pushed forward in the working direction of the hook and works empty when it is on the return. The twisting hook is held fast by a locking mechanism during the return of the rack. By this means the empty counter-revolution of the hook and the countershaft

are avoided which otherwise take place in the usual devices with rack and pinion drive for twisting fringes, thereby not merely saving power, but also lessening the wear and tear on the toothed wheels and on the bearings of the twisting hooks. Further it is now possible, if desired, to let the rack run back empty at a higher speed than the working stroke. On the other hand, owing to the fact that the hook remains at rest during the whole of the return of the rack, there is more time available for casting off the finished fringe and hooking on a fresh thread. Hae.

*Power Pile Carpet Loom.*

Victor Charles Emile Le Gloahec, Saint-Cloud, Seine-et-Oise, Germ. Pat. No. 438 219 (16. 2. 24). The invention relates to a power pile carpet loom in which the pile thread needles pass through the vertical warp and are taken back by means of two needle plates, one of which lies before and the other behind the warp. These plates are arranged vertically to the surface of the warp and the pile thread needles are stuck into one of them. When the two plates approach one another and the needles are passed through the warp, the needles are taken up by the other plate, so that they are completely pulled through the warp together with the pile threads. In order to form the knots on such a loom, at certain intervals the warp must move across the pile threads, which has hitherto been done by moving both warps, together with warp beam, cloth beam, etc. as a whole across the needle plates. According to the present invention the warp etc. is not moved transversely, but in the ordinary way, while the needle plates are moved across the warp when a knot has to be made. It will thus be seen that the needle plates besides having a to and fro motion for pushing the pile threads through have also at certain intervals a transverse motion.

The invention also provides for devices which permit of the needles being guided with the utmost exactness so that they always pass between two adjacent warp threads and cannot stick into one or other of them. For this purpose doups are employed which twist part of the warp threads and adjust them transversely to their division, so that a wide space is made for the passage of the needles. Hae.

*Rack for Warp Beams.*

Fritz Altmann, Sorau, Germ. Pat. No. 438 416 (11. 1. 25). The invention relates to warp beam racks in which the warp beams lying about in the mill are kept clean, accessible, and safe from breakage. According to the invention the stands are provided with hooks for laying in warp beams of different width

and with a rotatably mounted lifting apparatus with adjustable gripper for filling both sides. Hae.

*Shuttle Holder for Looms with Automatic Change of Shuttle.*

Kiichiro Toyoda, Nagoya, Japan, Germ. Pat. No. 438 370 (15. 5. 26). The aim of this invention is to arrange a device on the entry side of the holder which shall prevent a shuttle which has been thrown with one side upwards from entering the magazine, while all properly thrown shuttles are allowed to enter it. Accordingly feeler levers at the back of the holder are pressed by springs into the shuttle race and these levers actuate ratchet levers in and out of the course of the shuttle in the magazine. When the shuttle is thrown in the correct position the feeler lever is thrown outwards and removes the ratchet lever out of the way of the shuttle so that it can enter the magazine. But if the position of the shuttle is not correct, the feeler lever swings inwards with the ratchet lever and catches the shuttle. Hae.

*Lamp for the Examination of Fabrics.*

Fr. A. Reinhard, Wiesbaden, Germ. Pat. No. 428 435 (16. 12. 22). This invention relates to the examination of all kinds of woven and knitted fabrics and the like for weave, closeness of texture, and so on. For this purpose the pieces of fabric are exposed to rays of light from above or below, or from both directions simultaneously. This method of illumination in combination with a matt glass plate ruled with lines permits of the examination of samples of the most difficult fabrics in a very short time and with an exactitude hitherto unattained. The invention further provides for an ocular situated on a lazy tong which holds the cloth fast by its own weight under a kind of spring action. Chance movements are excluded because a vertical rack with a stop motion arranged at the left-hand side prevents unintentional changes of position. Hae.

*Device for Looms with Automatic Change of Shuttle for Removing the Cut off Pick Ends of a Shuttle Ejected from the Race.*

Maschinenfabrik Rüti vormals Caspar Hon-  
egger, Rüti, Zürich. Germ. Pat. No. 437 908 (4. 12. 25). It often happens in looms with automatic shuttle change of the type started by a pick feeler that the changed bobbin or tube is not able to pull out of the shuttle the piece of thread cut off by the knife in changing the shuttle. This occurs particularly when heavy yarns are being used and with weft tubes for bobbins which wind off inside. The consequence is that the shuttle pulls the end of the thread into the fabric and causes double picks. In order to make the device

for pulling out the thread work reliably, a pull-out hook is mounted in front of the slay and enters an opening in the shuttle box when the slay beats up. It gets behind the thread left by the ejected shuttle and plucks the thread out of the shuttle race when the slay retires. Hae.

*Double-lift Dobby for Looms.*

Alphonse Pinoit, Clichy, Seine, Germ. Pat. No. 437 872 (23. 12. 24). This invention relates to an improvement in doobby looms with double lift, in particular to a special construction of the hooks and the lever which attaches them to the connecting rod.

It has been a disadvantage of the machines of this type hitherto known, in which the hooks are moved by the pins of a needle pushed through the card against fixed stops or movable knives, that the position of the hooks is affected by the position of the lever which attaches them to the connecting rod. Attempts have been made to overcome this fault by interposing guide rods between the hooks and the lever of the connecting rod. The present invention solves the problem by making the hooks work together with the connecting rod lever by means of a slot-like device, e. g. by means of a slotted slidable block rotatable in the hook and by means of the connecting rod lever which carries the hook in the slot. In this way the respective position of the hooks is preserved in every position of the connecting rod lever. Hae.

*Arrangement for Automatic Looms for Guiding and Holding the Ends of the Threads of Bobbins before Inserting them into the Shuttle.*

Maschinenfabrik Rüti vormals Caspar Hon-  
egger, Rüti, Switzerland, Germ. Pat. No. 437 476 (20. 11. 25). In order to thread accurately the weft yarn of a bobbin from the rotatable magazine of an automatic loom to be pushed into a shuttle and to prevent the yarn of the different groups of bobbins from ravelling, it is of the highest importance that the ends of the yarn of the bobbins set into the rotatable magazine are perfectly led and in position. This can be provided for before the bobbins are placed in the shuttle by connecting each rotatable magazine with a thread mounted in front of it which corresponds in form and size to the form and size of the container. The purpose of this contrivance is to guide the yarn ends of each two groups of bobbins when they slip down in the magazine and to bring them to the vertical middle plane of the shuttle, at the proper height, when the magazine turns to the change position. Besides this, the thread ends of each group of bobbins are held separately and braked by a stationary, subdivided holder. Hae.

*Picking Device for Loom.*

Josef Bim, Marienthal, Post Obergeorgen-  
thal, Czechoslovakia, Germ. Pat. No. 437 149  
(22. 11. 25). According to this invention the  
picking mechanism is simplified by using as  
actuating force a belt which is led over two  
pulleys, the ends of which are connected  
with a tension spring and with a picking  
lever. Little blocks of leather are screwed on  
to the belt itself and are employed both to  
catch the shuttle and to throw it through the  
shed. The belts form part of the shuttle race,  
so that it must be possible to adjust the belt  
according to its thickness which can be done  
by providing vertical slits at the pulley bear-  
ings. In order to brake the shuttle running  
up against the pick, the latter is furnished  
with a pressure spring. Hae.

*Back Rest Drive for Looms with Disengag-  
able Dobby Eccentric.*

František Volech, Vrchlabi, Czechoslovakia,  
Germ. Pat. No. 437 907 (26. 7. 25). The purpose  
of this invention in the first place is to stop  
the movable back rest while the dobbie is at  
rest without any other contrivance so that  
the thin protecting strips can be dispensed  
with and the warp is not injured by the  
irregular tension. This is done simply by  
actuating the back rest lever, which is gener-  
ally set in action by a cam on the crank shaft,  
by a disc cam, the shape of which is changed  
a little, mounted on the dobbie shaft eccentric.  
At the same time the back rest lever prevents  
the dobbie eccentric from running in advance  
or from tipping over. This used to be done,  
but not satisfactorily, by a small belt which  
continuously acted as a brake on the dobbie  
eccentric while in motion. Hae.

*Piano Card Punching Machine.*

Paul Jürgens and Heinrich Reuter, Krefeld,  
Germ. Pat. No. 442 340 (21. 12. 24). The ope-  
ration of a card cutting machine is much  
simplified by arresting the keys or the trans-  
mission lever when being pressed down and  
releasing them in common by a touch of the  
hand after punching. By this means it is  
possible to operate all the keys with one  
finger. Besides this, the card cutter can  
readily overlook the position of the keys by  
comparing the pattern with the keyboard  
before punching, and correct any mistakes.  
Hae.

*Process for Making Ribbons with Woven-  
in Buttonholes.*

Gesellschaft für Bandfabrikation G. m. b. H.,  
Säckingen, Baden, Germ. Pat. No. 442 390  
(12. 2. 26). The invention relates to the pro-  
duction of ribbons with woven-in button-  
holes by means of a single shuttle. For this  
purpose the shuttle is allowed to weave alter-  
nately first one edge of the buttonhole and

then the other in several picks and cutting  
the picks which cross the position of the  
buttonhole along the warp threads of the  
edges so as to cut open the buttonhole. It is  
for this purpose advisable to use a guide  
thread along the length of the buttonhole to  
guide the knife in cutting out the buttonhole.  
Hae.

*Apparatus for Looms for Making Fringes.*

André Louis Paul Guibout, Paris, Germ.  
Pat. No. 443 193 (1. 11. 25). Devices for mak-  
ing fringes are known in which the weft is  
drawn through the shed by a withdrawing  
hook mounted in a bow. According to the  
present invention the withdrawing hook is  
formed as a lever with two arms, one of  
which grips the yarn, while the other engages  
the pulling device which twists the hooks.  
The pulling device can consist of a bow the  
positive movement of which opposite a sleeve  
causes the withdrawal hook to twist. The  
adjustment of the bow in relation to the  
sleeve is effected by lifting a pivot of the  
bow against the action of a spring by means  
of a lever which can rotate on an oblique  
rising surface. The lever is set in motion  
automatically according to a previously ar-  
ranged rate of revolution of the withdrawal  
hook and the fringe by the action of another  
lever. The withdrawal hook is raised and  
lowered by an arrangement of levers which  
are actuated by a cam disc and the move-  
ment of which is limited by adjustable  
brackets, whereby the length of fringes can  
be modified at will. Hae.

*Hat-shaping Machine with Appliance for  
Distributing the Hair either before or after-  
wards.*

Carl Heinze, Maschinenfabrik A. G., Guben,  
Germ. Pat. No. 442 678 (9. 10. 25). According  
to this invention the hair fibres liberated by  
the first distributor are led to the second  
distributor by an air current alone in a free  
path through a flight canal set steeply up-  
wards over one or two sieve rollers which  
permit air to pass through. No special trans-  
porting devices, such as endless aprons, lat-  
tices, or the like, are used. The sieve cylinder  
through which the air is led off is arranged  
directly before the feed rollers of the second  
distributor and at the same time also at the  
far end of the flight channel from the first  
distributor, that is to say, directly in the cur-  
rent of hair. By this means the hair is led by  
the air over the shortest way to the next  
feed rollers. The air hereby passes through  
the holes in the sieve roller and there is no  
return movement within the canal to cause  
the least whirling motion. The hair is laid uni-  
formly upon the sieve roller just as it is  
brought by the current of air from the pre-  
distributor. Hae.

*Mechanism for Raising the Healds of Dobbies for Looms, in particular for Ribbon Looms.*

Gustav Schmitz and Walter Kettler, Schwelm i.W., Germ. Pat. No. 442547 (6. 9. 25). According to this invention the transmission of the movement of the hooks to the shafts is actuated by lever joints and double-armed levers to each hook. The levers are each connected by joints with another movable double-armed lever from the outer arm of which an arm is hung upon which a wire is fastened, preferably adjustable, which is connected with the shaft. Hac.

*Crompton Dobby.*

Vogtländische Maschinenfabrik (vorm. J. C. & H. Dietrich) A.G., Plauen i.V., Germ. Pat. No. 443070 (26. 9. 24). The present invention provides for an arrangement which is simpler and more reliable than that hitherto in use. The hook needles not merely negatively, but directly engage the needles which are freely suspended over the auxiliary machine on the lifters in the well known way, but also the bars, which are themselves adjustable, are turned towards them. By means of the bars, the needles are supported in the high position on a fixed facing bar, so long as they are not pressed away from it by the needles in accordance with a pattern card. Since all the parts act on the adjustment of the shaft lifting lever hooks with a minimum of intermediate members and the hooks are prevented, in spite of this, from falling down when they are compelled to occupy their raised position for a number of consecutive working turns, the forces which the pattern card has to exert are reduced to a very low figure and the cards in this way are treated more carefully. Hac.

*Device for Securing the Interchangeable Knife in the Pile Wire.*

Carl Schlemper, Ohligs, Rhineland, Germ. Pat. No. 442492 (9. 3. 26). The blade is protected in a very simple way against being twisted out of the groove. By means of appropriately shaped pliers, one check of which has a die-shaped projection, a collar-like protrusion is formed at a specially soft part of the knife sitting in the groove, and this projection engages with a corresponding hole in the inner limb of the groove. If the knife has to be changed, the projection is flattened again by means of other pliers, so that it can easily be withdrawn by pliers from the groove. Hac.

*Arrangement for Moistening the Warp Threads in Looms.*

Charles Frederick Jones and Mather & Platt, Ltd., Manchester, Germ. Pat. No. 442341

(11. 1. 24). The invention relates to a contrivance for moistening warp threads in the loom by means of a porous moistening member mounted so that it can be swung across the warp and a tube with perforations. According to the invention the perforated tube is continuously and regularly supplied with liquid from a container and is fitted with a casing which serves to carry a cloth-covered roller, the space between the roller and the holes within the casing being filled with material that absorbs moisture. Hac.

*Creel for Warping Machines for Cheeses.*

Ateliers all Construction Rüti Anc. G. Honzeger, Fr. Pat. No. 609410. The cheeses are stuck on the creel in groups of two opposite one another on each rail. The yarn is drawn off all the bobbings axially, diverted at right angles by pot eyes and collected as a whole through a guide reed. The new creel occupies little space and permits of beaming from many cheeses. Hac.

*Threading Shuttles.*

L. Leuton, Rockland Works, Coventry, Brit. Pat. No. 255985 (18. 5. 25). A round iron bolt with a loop of cotton thread at its inner end is adjustably mounted in a hole in the side wall of the shuttle. The thread running off the bobbin in the shuttle is passed through the loops. The thread is led through the eye in the side of the shuttle by the action of a permanent magnet on the iron bolt. Hac.

*Controlling the Tension of Warp Threads.*

G. J. Jeckel, Enschede, Holland, Brit. Pat. No. 251467 (17. 6. 25). In order to control the tension of the warp in weaving with four ends in each dent of the reed, the two ends in the middle are led over a stationary back bearer and the two ends adjacent to the reed wires over a movable back lever which is moved forward by an eccentric at the moment in which the weft is beaten up, so that the threads are simultaneously slackened. Hac.

*Process for Felting Woollen Fabrics.*

E. Ricalens, Laroque d'Olmes, France, Brit. Pat. No. 254609 (19. 1. 26). In a kind of open-width washer with squeezing rollers the fabric is first led open width in folds through a soap solution with oil. After this treatment woollen dust is added from time to time to the liquid which forms a pasty covering on both sides of the fabric which is lightly felted by the pressure rollers. Hac.

*Arrangement for Sizing Artificial Silk Warps.*

Courtaulds Limited and C. F. Topham, London, Brit. Pat. No. 254866 (23. 6. 25). The

warp is led from the beam between a roller which dips into size and a pressure roller, then through a raddle and a chamber dryer to the beam. The pressure roller is made of rubber and is hollow, so that it can be weighted with water, or the like, as desired. Hae.

*Brake for Pattern Chains.*

F. R. Ritter, Fleetwood, U.S.A. Amer. Pat. No. 1594757 (3. 8. 26). In order to ensure the action of a pattern chain, e. g. on a knitting frame, a brake is arranged inside one of the chain wheels composed of two brake shoes which are jointed together. The free ends of the shoes are elastically joined together by a bolt which is screwed into one shoe and lies loose in the other shoe with a spring set over it. Schr.

**KNITTING, BRAITING, LACE MAKING,  
AND THE LIKE.**

*Knitting Machine with Needles which form Long Latches.*

Otto Röschl, Schönlinde, Bohemia, Czech. Pat. No. 13597. Latch needles with a notch in the head of the hook are arranged in a horizontal needle bed, and in the opposite needle bed latch needles with an edge corresponding to the notch, so that the needles engage with their heads and the long latches cover the tips of the needles opposite. Dr. K.

*Bead Threading Machines with Twin Needle Carrier.*

Hugo Heinzl, Fischern, near Karlsbad, Czech. Pat. No. 14353. The invention relates to a bead threading machine with twin needle carriers in which the beads glide from the needles on to the threads by alternate opening and closing of the needle holders. In this machine the needle carrier which wanders through the bead container round a horizontal axis takes the beads out of the container and distributes them on the threads. The thread carriers are led by levers alternately through two guides, one of which is arranged concentrically to the axis of the levers and the other eccentrically, by which means the needles, which are inclined in their receptive position in the container, are led about. On its further way to the graduated removal of the beads the carrier remains in a hanging position, whereby the needles stand erect and are tipped over and returned to their original position. Dr. K.

*Process for Preventing Laddering in Those Parts of Knitted Goods which are Subjected to Hard Use.*

J. H. Vatter, Schönlinde, Czech. Pat. No. 17787. According to this invention the parts in question are completely shut off from the rest of the fabric by a system of loops which are not liable to ladder. Dr. K.

*Circular Knitting Machines.*

J. G. Kane, Easton, U.S.A. Amer. Pat. No. 1589290 (15. 6. 26). The machine attaches a semi-cylindrical extension to the legs as the instep of the stocking. It is knitted, like the heel, with a swinging needle cylinder. The object is to give the instep a better shape than when it is worked round after knitting the heel with the foot. When working on the heel, the semi-cylindrical extension of the leg is held by special fabric grippers. Schr.

*Process for Making Stockings in One Operation.*

Curt Hilscher, Chemnitz, Fr. Pat. No. 611749 (25. 10. 24); no corresponding German Patent. In order to knit the heel more rapidly, the courses are widened by two or more needles every two courses or more. For this purpose the heel thread guide can go into action already at the splicing of the heel, while the ground thread guide only works the middle part, and both are connected by splicing. Or besides the heel thread guide a special high heel splicing thread guide can work, while the ground thread guide is working the middle part, which remains unconnected with the high splicing on the heel. Thirdly, the heel thread can take a course which continually increases outwards by two needles and is limited inwards by the strengthening line, while the widening continually increases by two needles. The arrangement works with broad points widened by a narrower addition point, which can be put out of action at the heels. Schr.

*Lace Machine.*

Ch. Bilhartz, Strasbourg, Brit. Pat. No. 252358. The spool carriers are adjustable lengthways to one another, and the spools themselves are actuated directly according to the pattern by two pattern drums arranged alongside the machine. According to the class of goods to be made, the threads can be used alone to make net-like fabrics by interlacing themselves, or they can be combined with threads from special beams to form the most diverse articles. Gl.

*Multiple Needle Embroidery Machine.*

Voigtländische Maschinenfabrik (vorm. J. C. & H. Dietrich) A. G., Plauen i. V., Germ. Pat. No. 442742 (29. 4. 24). In machines of this type with several needle rods closely superposed on a carriage, each of the needle rods can, if desired, be coupled with a common drive or made stationary on the machine frame after having been uncoupled from the drive. The guide members for the needle rods, which can be driven independently of one another, lie in one plane. Gl.

*Drive for Knitting Machines.*

La Nationale Mécanique Société Anonyme, Brussels, Brit. Pat. No. 256 661 (17. 8. 25). The electric motor, a coupling, and a stopping motion which is actuated by a stop motion and acts electrically on the coupling, all form a single unit which can be applied as a whole to any hand knitting frame. Schr.

*Jacquard Mechanism for Circular Knitting Machines.*

Mellor Bromley & Co., Ltd., Leicester, Brit. Pat. No. 261 881 (2. 12. 26). Several Jacquard mechanisms are arranged around the cylinder of a circular knitting machine and comprise a racking drum carrying the pattern card. A feeler is in touch with the pattern card which is pulled along a little when its nose falls into a hole in the card and the cylinder, which serves to actuate a knee lever. This in turn lifts a selector lying in the groove under the needle and brings it within the action of the cam. Schr.

*Mechanism for Guiding the Plating Thread in Circular Knitting Machines.*

William Lacey, Nottingham, Brit. Pat. No. 262 219 (9. 12. 26). The head of the thread guide is mounted in a frame which can be moved up and down by means of a lever arranged on a rod at the side of the machine and connecting rods. The frame is arranged so that it cannot revolve. Schr.

*Plating Arrangement for Circular Knitting Machines.*

E. Wildt & Wildt & Co., Ltd., Leicester, Brit. Pat. No. 261 524 (25. 11. 26). Two thread guides are provided which approach the needles in turn and bring first one and then the other thread to the face of the goods. The thread guide which retires brings the other one forward. Both horizontal and vertical stripes can be produced by this arrangement. Schr.

*Pattern Wheel for Circular Knitting Machines.*

J. Hull, Leicester, Brit. Pat. No. 262 266 (9. 12. 26). The pattern wheel is provided in the usual way with needle-engaging elements which raise the needles. The wheel is not driven as usual by the needle butts, but directly by a gear wheel drive by means of a wheel placed on its axle which engages a wheel on the needle cylinder. Schr.

*Thread Carrier Arrangement for Cotton's Patent Frame.*

William Cotton Ltd. and H. Aldridge, Loughborough, Brit. Pat. No. 264 594 (21. 1. 27). The paths of the rails of the thread carriers are limited at will by interposing drop-

pers between fixed stops. The droppers are guided by a jacquard card. Schr.

*Arrangement for Driving backwards and forwards the Carriages of Knitting Frames.*

C. Lumpp, Ohmenhausen, near Reutlingen, Swiss Pat. No. 117 334 (2. 7. 25). The carriage is driven by an endless cord which runs continually in one direction. The carriage is provided with a clutch coupling which grips first one side of the cord and then the other, so as to reverse the direction of the carrier. The change of coupling is effected by the carriage striking against a spring catch. Schr.

*Jacquard Raschel Machine.*

Société Scheni & Cie., France, Fr. Pat. No. 613 657 (29. 3. 26). The points are set in jacks which lie across the needles and are pushed singly by crank levers right through the knitting needles in order to swing out the points. The levers are actuated by a jacquard machine. The movement of the whole point bar lengthways is caused as usual by pegs from a patterning arrangement. Schr.

*Drive for the Sinking Parts of a Flat Knitting Frame.*

R. P. Dupré, France, Fr. Pat. No. 613 681 (30. 11. 26). These parts should be driven with uniform speed and rapid return to the reversing point. For this reason they are driven by two crank drives which act upon one another so that they mutually reverse their accelerations and retardations. One crank, for instance, engages with the slur cock carriage and its wheel is driven by another crank wheel, the crank pin of which glides in a link running eccentric to its turning point. Schr.

*Stocking.*

Fabrique de Bonneterie fine de la Marne, France, Fr. Pat. No. 613 072 (7. 7. 25). To prevent stockings from slipping and becoming twisted, strips are knitted in the stocking above or below the knee, or at both places, which pull the stocking together. The strips may be made of stouter threads, or of another material, such as rubber, metal, or such like. Schr.

*Slur Cock Drive for Paget Frames.*

L. Brulfer, France, Fr. Pat. No. 614 931 (16. 3. 26). The slur cock is driven by a cord which runs over a wheel that moves backwards and forwards. The wheel is driven by treadles and reverses its direction at the end of the slur cock run. Schr.

*Plating Thread Motion for Flat Knitting Machines.*

K. Nebel, Philadelphia, Amer. Pat. No. 1 580 072 (6. 4. 26). The machine has a narrow-

ing motion besides a plating thread motion and both are connected in such a way that when one motion is actuated the other is put out of gear. Schr.

#### *Socks.*

W. J. Cairns, W. Allen, W. G. Bunting, Belfast, Brit. Pat. No. 235 708 (2. 6. 25). The ankle part is made narrower than the part of the leg immediately above it. A sock of this type fits better and more firmly. The narrowing increases from the instep to the least width, and then decreases gradually. Schr.

#### *Presser Plate for Knitting Machines.*

A. Martelle, Belogna, Swiss Pat. No. 115 090 (23. 2. 25). The presser plate is used to prevent the needles of a knitting frame which are not to work from forming their stitches in the ordinary way. Both sides are cut with different spaces according to the position of the needles required, so that the presser can be used for two patterns. The ends of the plate are bent at right angles to guide it on the needle bed. Schr.

#### *Mounting for the Axles of the Loop Wheels of Circular Knitting Machines.*

Maschinenfabrik A. & G., Amriswil, Switzerland, Swiss Pat. No. 115 091 (17. 7. 25). The conical end of the axle of the loop wheel lies in a ball joint ring which is arranged in a swinging member, the height of which can be adjusted. The tip of the axle is set in a hole of the swinging member and lubricant is fed from the bore to the ball joint. Schr.

#### *Device for Unravelling Knitted Goods.*

G. M. Sugnaux, Fr. Pat. No. 607 958 (14. 12. 25). The fabric to be unravelled is stretched over a socket upon which as many reels with adjustable arms have been arranged as there are coloured threads present in the material. The reels are all driven by a shaft with hand wheel and belting. If any obstruction raises the tension of a thread too much, the reel in question can be brought to a stop by raising a belt tension pulley. Schr.

#### *Cam for Flat Knitting Frames.*

George Bell and E. O. Donner & Co., Kilmarnock, Brit. Pat. 255 135 (28. 4. 25). One of the parts of the cam is formed in two sections and allows the needles passing through from the outside in one direction to run between them and then through the middle channel of the needle raising part to work double rib goods. The needles which have to describe this course are adjusted according to the part by a pattern mechanism or by hand. The two parts of the cam are pressed together by springs. Schr.

#### *Reverse Plating Arrangement for Circular Knitting Machines.*

T. G. Whyte and Th. Smith, Shepshed, Brit. Pat. No. 251 864 (27. 10. 25). Before casting off the loop consisting of ground thread and plating thread, the threads are turned so as partly to show the plating yarn on the face of the fabric. A second cylinder is superposed above the needle cylinder and bears needles with smooth tip at the lower end and butts at the upper end. These needles are lowered by a cam upon the needles just as a loop is to be cast off and turn round the threads in the loop. Schr.

#### *Plating Mechanism for Circular Plating Machines.*

W. Spiers, Leicester, Brit. Pat. No. 247 336 (9. 12. 24). Both of the thread guides for the ground and plating yarn are adjustable radially to the needle cylinder within the main thread guide. The movement is effected by levers guided by a pattern chain. First one and then the other guide and lays its yarn first on the needles while the thread guide behind it is guided by a slit into the main thread guide and lays its thread behind the first thread. Schr.

#### *Single-needle Embroidery Machine.*

Vogtländische Maschinenfabrik (vorm. J. C. & H. Dietrich) A. & G., Plauen i. V., Germ. Pat. No. 439 441 (15. 11. 24). The two needle locking bars which act together are each led by a frame which is mounted on the frame of the machine and can be rocked laterally. These are influenced by two projections which regulate the extent of the swing. The projections cause the locking bars to oscillate out sideways as desired after every complete movement up and down or each time the needle penetrates the fabric. The rocking lever which acts together with the projections and guides the swing frame can be adjusted on the rocking driving shaft by means of a hand lever opposite the two projections. Several projections are provided for making different kinds of flat stitch. They are made in one piece and can be adjusted to their active working position by a common lever opposite the rocking lever. Gl.

#### *Circular Knitting Frame.*

Th. Scott Grieve, Leicester, Brit. Pat. No. 255 210 (25. 6. 25). A circular knitting machine with two axially superposed cylinders is provided with a device whereby the upper cylinder can be lifted up together with all its appurtenances and is held in this position so as to reach the needles and sinkers of the under cylinder. Schr.



*Mechanism for Change of Thread in Circular Knitting Machines.*

W. E. Booton, Leicester, Brit. Pat. N. 258 406 (15. 8. 25). A rotary pattern drum is attached to the main driving shaft. The drum is set with studs which engage with rods on the thread guide and is actuated by a travelling chain member. This arrangement enables a more extensive and varied range of patterns to be produced. Schr.

*Process and Machine for Making Double Hosiery.*

K. Allen, Toronto, Brit. Pat. No. 257 794 (30. 11. 25). Two stockings are knitted and attached together at the back and foot, which is done by arranging a section with hook jacks which take up the loops of both surfaces, in place of the ribbing disc. Schr.

*Circular Frame with Reversing Plating Motion.*

A. E. Stewart, Amer. Pat. No. 1 602 786 (12. 10. 26). At the places where the ground and plating thread are to be reversed, specially shaped sinkers are inserted which reverse the threads. One of these passes through a tension device and is laid by the high tension before the other thread. Schr.

*Stocking.*

Scott & Williams, U.S.A., Fr. Pat. No. 608 031 (16. 12. 25). The strengthening of the high heel is narrower than half the circumference of the stocking. The strengthening of the sole is kept low so as not to show over the shoe. Schr.

*Needle Bed for Flat Knitting Machines.*

E. Mottea, Fr. Pat. No. 611 297 (8. 7. 26). The knocking-off comb is not milled out of the needle bed, but consists of a number of jacks connected by crossbars and is screwed on to the needle bed. Schr.

*Process for the Mechanical Production of Insertions of any Shape in Bobinet Lace.*

Alb. & E. Henkels, Handelsges. m. b. H., and Eugen Turck, Barmen-Langerfeld, Germ. Pat. No. 436 014 (3. 1. 26). The insertions are made as parts of a continuous piece of lace with parallel edges lengthways. The threads which are not worked for the insertions are taken out of them and used to make a ground which partly or wholly surrounds the insertions and supports their edges. Before any of the threads which are not required in the insertion are taken out of the insertion, they are so plaited with the threads left in that the edges of the insertions cannot slip over the threads taken out. In order to support the edges still further, part of the threads in the

insertion can be employed to form return loops about the edging threads at the borders of the insertions. After the length of lace has been finished, the insertions are finally laid free by clipping away the groundwork surrounding them. Schr.

*Round Braiding Machine with Two Rows of Spools Revolving in Opposite Directions.*

Bruno Nity, Barmen-R., Germ. Pat. No. 437 103 (12. 12. 15). The circular braiding machine has two rows of spools revolving in opposite directions. The inner row runs in a path provided with entry points for the braiding threads of the outer row and is actuated by gear wheels, while the braiding threads of the outer row of spools are led in a curved path through thread guides. The thread guide eye of the curved path keeps the same distance from the braiding point. The invention consists in providing each bobbin carrier in the inner row with only one driving wheel which is actuated by a toothed rim common to all the driving wheels and which stands still when the driving wheels revolve and rotates when they are at rest. Schr.

*Stop Motion for Bobbins without Insertion, but with Inside Spring.*

F. W. Blasberg, Barmen-R., Germ. Pat. No. 437 748 (28. 3. 26). The part of the stop motion which brings the machine to a standstill is separated from the part connected with the thread tension spring inside and is loosely mounted on the sleeve of the bobbin foot, so that it can rotate. By this means the part connected with the spring is not affected by the jerk caused by the stoppage of the machine, and the jerk is absorbed by the revolving part without causing any damage. Schr.

*Circular Knitting Machine for Narrowed Tubular Goods.*

Eugène Henri Marie Emile Durand, Paris, Germ. Pat. No. 437 746 (28. 8. 23). The subject matter of this patent relates to a circular knitting frame for goods in which the yarn can be transferred directly from one needle to another. The invention concerns chiefly the arrangement of the needles working up and down upon guide surfaces in such a way that half of them make straight movements and the other half similar movements in the upper part of their path, but in the lower part move backwards. An arrangement is provided which tends to lead each of the needles during the second part of their motion by lateral inclination into the first row, or half-row, of needles behind the neighbouring needles. For this purpose combs are provided which produce the lateral inclination of the needles in order to place them exactly behind one another. Further the machine has cams

with curved paths and connecting path switches to guide the needles and sinkers when normally at work during the operation of transferring and when the needles are out of action, during which period the movements started are automatically continued. Schr.

*Magnetic Pattern Arrangement for Flat Knitting Machines.*

Wilhelm Luhn, Turn-Teplitz, Czechoslovakia, Germ. Pat. No. 437747 (8. 9. 25). A cylinder carrying a pattern card is moved forward at each run of the carriage when the knitting frame is at work and is provided with a long electromagnet firmly mounted on a hollow shaft. Outside the cylinder between the knitting machine and the pattern device as many levers are movably arranged on a shaft as there are needles in the machine, so that these levers which come to lie before the holes of the pattern card are attracted and thereby push up the corresponding needles in the machine, that is to say, set them in working position. Schr.

*Process for the Manufacture of Warp Fabric.*

Schubert & Salzer, Maschinenfabrik A.G., Chemnitz, Saxony, Germ. Pat. No. 438198 (21. 12. 23). The holding-down sinkers of the one warp beam do not knit their yarn with that of the other beam, but are pushed aside by a jacquard arrangement, or the like, so that the threads are floated according to the pattern from the back of the fabric to the face, or bound in the sinker loops like a woven warp. Schr.

*Arrangement for Rib Knitting Machines for the Production of any Pattern Desired.*

G. Hilscher, Chemnitz, Germ. Pat. No. 438308 (27. 4. 24). The invention relates to a special mechanism for setting the adjustable needle bar and its adjustment by means of the slide lever. In order to adjust the needle frame, coverplates with stop bolts and set screws are arranged on it, while the slide lever carries a stop which can be moved into and out of engagement with the stop bolt, so as to adjust the needle bar by the slide lever. Schr.

*Process for Knotting.*

Gertrud Witte, Bern, Germ. Pat. No. 428995 (21. 5. 24). Upon every thread of a system of taut warp threads, there are formed thread eyelets over a rod by means of halfloops and knots, and the row of yarn eyelets is beaten up by this rod. The completed rows are best fastened by means of a bow which can be adjusted on the knotting plate. It is advantageous to use a pattern stencil in carrying out this process, which is characterized by lines upon the drawing laid beneath, or upon a

material laid between, corresponding to the distance of the row of knots. Schr.

*Electric Pattern Device for Raising the Needles in Circular Knitting Machines.*

Chemnitzer Strickmaschinenfabrik A.G., Chemnitz, Germ. Pat. No. 438387 (28. 12. 24). A strip of paper perforated with holes corresponding to the pattern runs over a metal cylinder which is connected with one pole of an alternating current and with the sinkers in the pattern wheel, to lift the needles. The other pole is connected with a stationary electromagnet arranged above the pattern wheel. When the current is switched on at the pattern wheel by means of a selecting finger on the pattern card and the passing by of the sinkers which are charged with current, the electromagnet is excited and pulls up the sinkers. Schr.

*Braiding and Lace-making Machine.*

Ludwig Eberle, Maschinenfabrik, Barmen, Germ. Pat. No. 439426 (30. 8. 24). The invention refers to a machine of the type in which the spools are arranged concentrically about an axis and the drivers are provided with grooves for the cam so that in their final position they form a complete round disc. The drivers are made of two congruent parts which are set loosely rotatable upon the pillars. Schr.

*Single Thread Braiding Machines.*

The firms of Emil Krenzler and Gustav Krenzler, Barmen-U., Germ. Pat. Nr. 439653 (16. 8. 23). Run-out plates with braiding springs are attached to the main raceway upon which the bobbins can be brought to rest. The main path is provided with plate-like drivers underneath the ordinary plates which can be brought to rest, and the run-out plates can be connected and disconnected by means of switches. Schr.

*Attachment for Circular Knitting Machines for Making Loops of Different Length.*

Fabrique de Bonneterie fine de la Marne, France. Fr. Pat. No. 615960 (1. 10. 25). The usual looping sinkers of a circular knitting frame are replaced by sinkers with a lower or a higher back at those places where shorter or longer loops are to be knitted. All sinkers, however, are of the same height at the locking-in place, so that the loops reach the same height again when the sinkers are pushed in, and adjust themselves. Schr.

*Circular Knitting Frame.*

K. Howie Wildman Mfg. Co., Norristown, U.S.A., Amer. Pat. No. 1603774 (19. 10. 26). A number of bearded needles are set out of action. The upper part of these needles is

bent backwards and they strike, upon rising, an edge which causes them to swing inwards. These lifted up needles take no thread and give tuck stitches. Schr.

*Device for Regulating the Length of the Loops in Cotton's Patent Frame.*

M. Zwicky, Textile Works, Penna., U.S.A., Amer. Pat. No. 1608285 (23. 11. 26). Specially long loops are knitted at those parts of a stocking which are to be strengthened. For this purpose an additional motion is imparted by the cam which raises and lowers the needle bars to the looping sinker, causing them to sink the loops more deeply. Schr.

*Locking device for the jointless pressers of flat knitting frames.*

Seyfert & Donner, Knitting frame Works, Chemnitz (Saxony), Germ. Pat. No. 432587 (5. 11. 25). According to this invention the pressers can be put out of action without providing them with joints, so that they are, for instance, independent of the Jacquard cylinder. For this purpose the section of the locking bar is altered, so that, for instance, only one edge lies on the presser and not on the surface, which permits of the presser being tipped up by its knee turning the point of contact. The same effect can also be produced, for to keep the presser in its raised position it is advisable to provide it with a spring in any wellknown way, whereby the back slanting surface of the needle bed serves to secure the presser when out of action.

*Driver for braid machines.*

Ewald Kromberg, Barmen-Rittershausen, German Patent No. 432685 (9. 12. 25). The invention relates to the driven for braid machines of the type in which the spindles with flat throat piece are led between the plates running with the pins and a raceplate surrounding them and are carried by the pins arranged on another plane, in particular on a plane which lies above the plates and the raceplate. To prevent the spindles from running aslant, the hubs of the pins are provided with outward flanges arranged in such a way that they overlap the foot plates of the spindles on the other side from the plates and raceplate. The flange effectually prevents the spindle from running obliquely, so that it cannot bump against the crossing points of the race-way. The friction on the spindle is not increased, because the flange runs with the diver.

## FINISHING

*Manufacture of Viscose Silk.*

J. Lams, Amer. Pat. No. 1558265 (18. 1. 23). The precipitating bath is composed of an

aqueous solution of 13—15% ammonium formate and 13—18% sodium formate. Hgl.

*Manufacture of Artificial Silk and the Like from Nitrocellulose.*

E. Bindschedler, Amer. Pat. No. 1562076 (31. 5. 27). The ester of nitrocellulose is dissolved in alcohol and ether, and spun in the usual way. The precipitating bath consists of a mixture of from 40—75 parts ethyl alcohol and 25—60 parts of glycerine, and the thread is led through this solution before the solvent has evaporated. Hgl.

*Waterproofing Cotton Fabrics.*

Le Normand, Fr. Pat. No. 601110 (23. 11. 25). The surface of the fabric itself is changed to a cellulose ester. The fabric is washed in a solution of dilute sulphuric acid and is entered into a solution of acetyl cellulose in acetic anhydride, glacial acetic acid, a solvent for acetyl cellulose, with the addition of a condensing agent such as sulphuric acid. In this solution the surface of the cotton fabric is changed to acetyl cellulose, but this change must not go far and must be stopped very quickly. This is done by passing the goods through solutions of acetyl cellulose which can take up and wash out the acetic acid and acetic anhydride. The solutions recovered in this way can be used to treat cotton fabrics, as described above, to waterproof them. Hgl.

*Artificial Lubricant for Fabrics.*

I. B. Deprat, Fr. Pat. No. 608611 (24. 4. 26). The lubricant is intended specially for artificial silk, but it can also be used for natural silk, schappe, etc. It strengthens the fibres and makes them less inclined to fray. It is prepared by mixing 40 grams linseed, 20 grams gelatine, 5 grams sugar, and 3 grams gum arabic in 1 litre of water. The thread to be treated is dipped into this solution for about twenty minutes, squeezed out, hydroextracted, and dried at 40° C. The drying takes about 48 hours and the treatment increases the weight of the silk by about six per cent. Other fibres also may be treated in the same way. Hgl.

*Calico Printing Machine.*

A. Crompton, Manchester, Brit. Pat. No. 254411 (27. 4. 25). The fabric to be printed runs between a cylinder with the pattern in relief and a smooth roller which is covered with the printing colour. An endless cloth which is saturated with colour from the colour pan runs over the smooth cylinder. The fabric to be printed is lightly pressed against the pattern cylinder so that it is coloured by the coloured cloth of the smooth rollers at the places where the pattern is impressed. Schr.

*Calico Printing Machine.*

E. Rotzinger, Alsace, Fr. Pat. No. 609 206 (16. 12. 25). The machine is fitted with a contrivance for adjusting the width of the back grey to that of the fabric to be printed. For example, two back greys are used which can be moved sideways to one another by adjusting the back grey guides. Or only one back grey and a wrapped pressure bowl can be used, which can be adjusted to one another to give the proper printing width. Schr.

*Drying Warp Yarn Dyed on the Beam.*

W. P. Hornbuckle, Stanley, No. Carolina, Brit. Pat. No. 256 454. Connections are provided at the bottoms of two chambers for a common pipe. The dyed beams are fitted upon these connections and firmly pressed by means of special pressure spindles which reach through the roof of the chambers. A blower is connected with the common pipe between the two chambers and blows hot air from a heater through the yarn on the beam. Hae.

*Dyeing Stockings.*

C. H. Hartig, Brit. Pat. No. 254 254. In an oval dye vessel provided with a circulating channel and a partition in the middle gripper members with drive are arranged in staggered relation to one another in each longitudinal compartment. The grippers are actuated by cranks with upper guiding rods in such a way that they enter the bath from above and push the stockings slowly forward, stirring them at the same time. During the dyeing steam is admitted from below towards the centre from an open steam coil lying at the wall of the vessel and on the bottom. Hae.

*Wet Treatment, in Particular for the Cleaning of Cloth.*

Dr. McKeller and J. McGregor, London, Brit. Pat. No. 257 491. An endless lattice is arranged at the bottom of the first tank and upon it the fabric is continuously laid zigzag in piles, slowly sent forward in piles, led off by drive rollers and transferred through guide rollers to a second tank. In this the fabric is continuously led openwidth over lower rollers and upper squeezing rollers. The first tank contains a solvent and the second a washing liquid. Hae.

*Loop Dryer for Fabrics.*

The Calico Printers Association and F. Farnporth, Manchester, Brit. Pat. No. 257 058. In order to finish both sides of a fabric with the same effect in one passage, it is passed over upper polished metal rollers and lower felt-covered rollers. According to the effect desired two or more of the upper and lower rollers are adjusted to press the fabric be-

tween them. To produce the effect on both sides of the fabric, it is led in the form of an S over the last two rollers. The polished metal rollers have a special drive for giving them a continuous reciprocal motion axially. Hae.

*Rollers for Padding Machines.*

F. Reddaway, Pendleton, Brit. Patent. No. 257 432. The pressure roller has a special cover which consists of rope with a core of flax with a felted cover of wool or the like. One or more layers of these built-up yarns are tightly packed side by side and form the roller cover. The roller is provided with copper rings to fasten the ends of the yarns. Hae.

*Loop Dryer for Fabrics.*

A. Mertz, Basle, Switzerland, Germ. Pat. No. 440 439 (21. 2. 25). In a dryer of this type with graduated heating by hot air, the side walls of the dryer which partly guide and partly divert the hot air parallel to the surface of the cloth are perforated like a sieve. The height and size of the perforations are regulated in zones by the extent to which the fabric has been dried, so that the stream of dry air becomes cooler from zone to zone as it approaches the exit end. By this means fabric which has been sufficiently dried in the upper zone cannot be overdried and the drying operation is made more economic by the use of air at a high temperature. Gl.

*Rolling Arrangement for the Rods of Loop Drying Machines.*

E. Gessner A.-G., Aue i. Erzgebirge, Germ. Pat. No. 440 438 (7. 3. 26). A side chain is provided parallel to the rod chain and engaging with the wheels of the drying rods. The side chain works together with a special change gear which gives it a motion in the same direction as the rod chain, or in the reverse direction. Gl.

*Slot Cover for Vacuum Hydroextractors.*

M. Rudolf Jahr, Gera, Reuss, Germ. Pat. No. 439 644 (8. 9. 25). The slot is covered by a cloth impervious to air which is laid at such an angle that it is pressed by the outer air upon the slot only at such places as are not covered by the goods. This angle can be altered according to the thickness of the goods. Gl.

*Finishing Device for Circular Knitting Frames.*

Wladyslaw Noga, Detroit, U. S. A., Amer. Pat. No. 1607 098 (16. 11. 26). An arrangement for applying paraffin to the thread is mounted in its path to the thread guides. It consists of a roll of paraffin which is rotatable on a plate and waxes and tensions the yarn. Schr.

*Arrangement for Singeing Yarn of all Kinds.*

A. Mettler, Reichenburg, Switzerland, Germ. Pat. No. 440 440 (Pat. of Add. to Germ. Pat. No. 417 859; 12. 8. 25). Each singeing chamber of the singeing tube is provided with its own singeing flame which is fed from a common gas chamber, and all the singeing chambers have a common outlet for smoke and dust. Vanes are arranged before and behind the singeing chambers which keep the yarn separate both before reaching the singeing chambers and after leaving them. Hgl.

*Machine for Fixing Fabrics, in Particular Woollen Fabrics, by Wet Treatment at the Boil.*

Philibert Deck, Mulhausen-Dornach, Germ. Pat. No. 439 149 (29. 4. 24). Arrangements for the wet treatment of fabrics are known, such for instance, as dyeing open-width fabrics, in which a body is placed in a container in order to displace liquid. This is done so as to reduce to a minimum the quantity of dye liquid through which the fabric passes and thus save colouring matter. The present invention applies this idea to a machine for fixing fabrics, in particular woollen fabrics, in which the fabric is continuously led in open width over a guide roller through the boiling bath, without using pressure rollers or rolling it up. The container for the boiling liquid is drum-shaped and the guide roller mounted in it is constructed as a drum-shaped rotatable displacement body with an undulating or roughened surface. By this means the fabric, which must be boiled while continuously in motion, its thoroughly penetrated by a bath which is comparatively short. Hae.

*Manufacture of Viscose Silk.*

P. Moro, Marseilles, Brit. Pat. No. 250 219 (24. 3. 26). The inventor is able to reduce considerably the amount of carbon bisulphide and caustic soda used and to shorten the time required for maturing. A solution of sulphur in carbon bisulphide is used for sulphurizing and they are brought together with the alkaline cellulose in the form of vapour, or in a very finely divided state. The alkali cellulose is pressed to from 225—250 parts (to 100 cellulose), and then treated with 15 to 25 parts of a solution of sulphur in carbon bisulphide at 30—40° C. After from 12—24 hours, the product is dissolved in water, or dilute caustic soda and allowed to stand for from 24—36 hours at 25—30° C, when it is ripe for spinning. The process can also be carried out by passing a solution of alkaline cellulose in a fine spray through a counter-current of carbon bisulphide vapour in a tower, maintaining a temperature of from 40 to 45° C. Hgl.

*Maturing Alkali Cellulose.*

Soie de Chatillon Soc., Milian, Brit. Pat. No. 250 017 (12. 4. 26). The inventor has found that the maturing of alkali cellulose can be made slower or stopped altogether by allowing it to lie in an atmosphere which contains no oxygen, that is to say, in the presence of inert gases, or in a vacuum. The presence of oxygen, especially of air rich in oxygen, much accelerates the ripening. Hgl.

*Process of Improving the Appearance of Goods of Celluloid and Cellulose.*

British Celanese Ltd., London, Brit. Pat. No. 250 658 (14. 1. 25). Moirée effects are produced on thin sheets of celluloid or cellulose by printing them closely on both sides with exceedingly fine parallel strokes or lines. This causes interference phenomena, which much improve the appearance of the product. The fine lines are impressed on the sheets by pressing them between two heated suitably engraved plates or rollers. Hgl.

*Waterproofing Yarns and Fabrics.*

E. S. Ali-Cohen, Haag, Brit. Pat. No. 250 623. The textile material is impregnated with a mixture of latex and soap solution, the caoutchouc is then coagulated and the goods washed, squeezed, and dried. Impregnation should be done at 70° C. Filling materials, such as soot, white clay, or zinc oxide, and sulphur and vulcanizing agents can be added to the mixture as required. Hgl.

*Process for Souring Fibrous Material before Carbonizing.*

Walter Löw Beer, Brünn, Czech. Pat. No. 15 425. The carbonizing liquid is applied only to the surface of the goods by printing, for instance, with engraved rollers. The carbonizing agent may be applied in paste form. Dr. K.

*The Use of Hydrogenated Naphthalenes as Scouring Agents.*

L. L. Lloyd, A. Womersley, C. Wilkinson, and A. Scott, Bradford, Brit. Pat. No. 252 811 (10. 3. 25). The hydrogenated naphthalenes as well as their derivatives and condensation products are much used in the textile industry as scouring agents. The following derivatives have proved to be specially suitable:

1. the condensation products of the hydrogenated naphthalenes with fatty acids;
2. the sulphonic acids of the hydrogenated naphthalenes and their alkaline salts;
3. the condensation products of these sulphonic acids or their salts with fatty acids.

The fatty acids that chiefly come into consideration are oleic acid, ricinoleic acid, cottonseed oil, and so on. Hgl.

*Producing Incombustible Artificial Silk.*

J. R. Levand, Brussels, Brit. Pat. No. 251 227 (14. 8. 25). The process refers chiefly to the products of nitrocellulose and uses formic acid, or acetic acid, an alkali sulphide, and magnesium sulphate, an alkali hydrosulphite, aluminium chloride, and finally ammonium sulphate, technical ammonium carbonate, boric acid, and borax. Hgl.

*Process for Dyeing Acetyl Cellulose.*

Färberei de la Rize, Rhone, Fr. Pat. No. 590 738 (25. 3. 25). Artificial silk products of acetyl cellulose are first treated in a bath of 1—3 kilos barium hydrate and 1—3 kilos barium chloride per 100 litres water at 50—70° C, for from 15 minutes to 2 hours, according to the depth of shade desired. The products are then rinsed in dilute vinegar and in clean water, and can be dyed with direct colours in the usual way. The process can also be applied to mixtures of acetyl cellulose with cotton, viscose silk, wool, or silk. Hgl.

*Hollow Viscose Fibres.*

British Enka Artificial Silk Co., Ltd., Brit. Pat. No. 253 477. Hollow artificial textile fibres are spun from a thin fluid viscose, avoiding the usual conditions for preventing retention of gases in the fibre, hitherto regarded as essential both before and after spinning. It is advisable to add a zinc salt to the spinning bath. The viscose should contain less than 8 per cent. cellulose and is best prepared from thoroughly matured soda cellulose which has either been strongly bleached or has been mercerized in the presence of an oxidizing agent. An extremely finely pulverized mineral, for instance, very finely ground pumice stone, may be added to the viscose so as to promote the escape of gas bubbles. Hgl.

*Artificial Silk.*

R. Attwater and A. Heinemann, Penwortham, Brit. Pat. No. 255 623 (4. 7. 25). According to this process, the alkaline solution of an albumenoid is added to the alkaline viscose spinning liquid. Such products as keratin, fibroin, spongin, or conchoelin, are used. The process is carried out most simply by adding a solution of feathers, or horn, in caustic soda to the viscose solution. Hgl.

*Hollow Artificial Silk.*

M. Lanfry, S. Houilles, O. France, and E. Brandenberger, Bezons, Brit. Pat. No. 255 527 (22. 4. 25). To produce glossy hollow silk threads from viscose to which soda has been added, certain definite proportions between the alkaline content of the viscose solution and the amount of sulphur and sulphate contained in the spinning bath must be adhered to. These are illustrated by a diagram.

It is advisable to use a viscose solution with 7.3% cellulose and 4—6% caustic lye. Hgl.

*Preparation of Hollow Artificial Silk.*

Courtaulds Ltd., London, Brit. Pat. No. 253 953 and 253 954 (17. 9. 24). For the manufacture of threads, ribbons, etc. of viscose with hollow spaces, an acid spinning bath is used which contains a zinc salt in solution, and a viscose solution in which a substance, such as soda, is dissolved, or emulsified, which causes the evolution of gas in the bath. The viscose used contains 3—5% caustic soda. Hgl.

*Production of Designs on Velvet or Similar Fabrics.*

E. Conte, Centallo, Italy, Germ. Pat. No. 443 558 (21. 1. 25). The patterns are produced without the use of dyestuff and without scorching the pile simply by interposing a sheet of oil paper, or the like, between the pile hairs and the hot pencil used for pressing them down. Gl.

*Process for Impregnating Vegetable, Animal, and Mineral Fibres, Threads, and Fabrics.*

Dr. Viktor Scholz, Jauernig, Czech. Pat. No. 16375. The materials are dipped alternately into a solution prepared by dissolving tanned leather by means of alkali in water, and in aqueous solutions of organic and inorganic acids, salts, and bases, which precipitate the leather from solution and fix it on the fibres. The solution of tanned leather is previously neutralized by oils, fats, resin, resinous acids, hydrogenated or hardened fatty acids, or pitch from cellulose waste lye. One hundred kilos leather cuttings are placed in a boiling solution of 10 kilos caustic soda and 1000 kilos water, and boiled for one hour till the leather is dissolved. The solution is then filtered and neutralized, for instance, by carbonic acid, or dilute acids, as well as fats, oils, resins, or fatty acids. The material to be impregnated is passed through the neutralized solution, dried, and then passed through a precipitating bath of 10 kilos aluminium sulphate per 100 kilos water, washed, and dried. Articles suitable for impregnation are, for example, fisher nets, travelling rugs, tent cloth, ropes, bandages, and so on. Dr. K.

*Process for Singeing Corduroy, Velvet, and Pile Fabrics.*

Heinrich Ries, Warnsdorf, Bohemia, Czech. Pat. No. 16645. According to Patent No. 13147 the process consists in moistening the goods, with a fire protection solution either on the back (weave side), or on the face (hair side). They are then allowed to lie until the moisture has soaked in, then well brushed several times, and singed either while still half moist or when quite dry. Dr. K.

*Stretching Arrangement for Mercerizing Knitted Goods, in Particular Socks.*

Hielle & Wünsche, Schönlinde, Czech. Pat. No. 16589. The arrangement consists of a stretching frame upon which the goods are pushed and held fast by a ring. The invention provides for an adjustable hoop with two legs for stretching the heel part, the two legs of the hoop being set in holes in the frame.

Dr. K.

*Stretching Arrangement for Mercerizing Stockings and the Like.*

Raimund Friedrich jr., Schönlinde, Czech. Pat. No. 17271. The arrangement consists of a frame-like stretching form and a ring-shaped clasp open at one side which can be adjusted upon it and is pushed into the double knitted tubular edge of the goods. The horizontal part of the clasp socket is bent inwards and reaches midway between the two legs of the frame, and a special member is provided for on the frame to fasten the holder upon it. The end section of the clasp is bent like a U and extends parallel to the two legs of the frame and equidistant from them beyond the plane of the holder clasp.

Dr. K.

*Adjustable Stenter Drying Machine.*

Waggon- und Maschinenbau A. G., Görlitz, Germ. Pat. No. 443621 (8. 8. 25). The guide chains are arranged gradually diverging along their whole course from the entry of the goods to their exit. The increasing distance between the chains can be altered by making the chains adjustable to one another.

Gl.

*Machine for Treating the Surface of Textile Fabrics.*

F. Rose, Clifton, and Chr. Werner, Passaic, U.S.A. Germ. Pat. No. 443623 (16. 12. 25). The rubbing rollers for treating the surface of textile fabrics are composed of flexible discs which are fixed in the middle, but can be bent sideways at the edge. Felt discs are particularly suited for this purpose.

Gl.

*Process and Device for Freshening up Knitted Goods before and after Calendering.*

Teinturerie de l'Est et de l'Ouest, Troyes, Fr. Pat. No. 598261 (26. 8. 24). Tubular knitted fabric, after having been dyed, is inclined to shrink irregularly and to show folds. To counteract this tendency the goods, after having been dried, are led open-width over a table with a porous top under which nozzles are arranged which discharge steam. After having been steamed, the fabric is led over a mandrel which stretches it out, then between pressure rolls, and finally rolled up. The goods fix themselves in the roll.

Hae.

*Apparatus for Washing Textile Fabrics.*

E. C. Duhamel, Roubaix, Brit. Pat. No. 230808. In order to wash textiles, especially wool, on the counter-current principle, the washing tanks are terraced above one another with squeezing rollers between each pair. The material enters the lowest tank by pressure rollers and passes in succession through the higher tanks while the washing liquor runs from the topmost tank through the others successively to the lowest. This arrangement besides enabling the use of the countercurrent principle facilitates inspection.

Hae.

*Equipment for Bleaching Textile Material with Oxygen or Ozone.*

Robert Mohr, Eibergen, Holland, Germ. Pat. 441269 (Patent of Add. to No. 421906; 28. 11. 24). The invention relates to the equipment for bleaching textile material with oxygen or ozone described in German Patent No. 421906, in which two bleaching kiers can be used either singly or together. The pressure vessel is connected on the one side through a valve with a special force pump and on the other side also with the superpressure pipe which leads the superfluous pressure liquid to a storage vessel. It can be connected up with either the complete circulation through both of the bleaching kiers or with the circulation through either of them. For this purpose a connecting pipe is arranged between the suction and pressure branches of the circulating pump which in turn are connected with the two kiers at the bottom. Each of these connections can be closed more or less completely at will by valves. The connecting pipe between the two branches is connected with the pressure vessel and the upper connections of the two bleaching kiers.

Hae.

*Process for the Preliminary Treatment of Cotton Hank Yarns before Mercerizing, Dyeing, and the Like.*

Ernst Bebié, Barcelona, Germ. Pat. No. 442074 (4. 11. 24). The hanks are not centrifuged after having been boiled off or wetted, but squeezed out under tension on guide rollers which may be attached, for instance, to the mercerizing machine itself, or may be a separate piece of equipment. This squeezing out makes every bit of the yarn uniformly moist, so that when entered into caustic soda it takes up the caustic and is evenly penetrated by it.

Hae.

*Cylinder raising machine.*

A. Klug, Crimmitschau, German Pat. No. 434084. The cylinders of the machine are driven by a friction ring which is adjustable lengthways on the cylinder. These rings are elastic, adjustable, open at one place and

provided with a smooth surface, the friction surface being on the driving discs of the raising cylinder. The ring is widened at the opening by a device which locks it, working against the elasticity of the ring. It is mounted in an immobile circular frame and can be moved radially. The locking device of the ring is so firmly coupled with the adjustment of the ring that the central position and the size of the ring are automatically adjusted on the driving discs of the cylinder when the position of the ring is changed axially.

*Machine for dyeing and washing hanks, especially of silk yarn.*

Maschinenfabriken Tillm. Gerber Söhne & Gebr., Wansleben, Crefeld, Germ. Pat. No. 423263 (25. 4. 22). The invention relates to a machine for the wet treatment (dyeing and washing) of yarn in hanks, especially silk yarn, with circulating rollers which can be raised and lowered and spraying tubes, whereby silk yarn is efficiently and gently treated. The spraying tubes for washing the goods after dyeing are arranged so that they can be raised and lowered together with the yarn carriers in such a way that they can be placed either above or below the circulating rollers between the freely suspended hanks and can follow without hindrance all the movements of the carriers. In consequence of this arrangement the yarn can be efficiently handled and washing can be begun immediately after dyeing without having to rehang the yarn.

*Process and arrangement for boiling and lye-boiling cotton and linen goods using a boiler and a kier, two auxiliary boilers, and a reservoir.*

H. Thies, Coesfeld, Westphalia, Germ. Pat. No. 433054 (22. 2. 21). The two chief disadvantages of the present kier boil are firstly the air which is unavoidably left in and secondly the cooling of the lye which causes the use of much heat. The present invention does away with these drawbacks by admitting the lye (either fresh or already used) from below into the kier at 60° C, which is raised to 90° C under pressure in circulation after the kier has been filled and allowed to act, after the circulation has been stopped, for several, say three, hours. Then the kier is freed of air as usual, circulation is renewed and the lye is brought up to the required minimum strength by adding fresh lye in the under convex part of the kier so as to avoid boil spots. Thereupon the main alkali lye is pumped under high pressure into the lower part of the kier, heated indirectly and kept in circulation, thereby promoting the main process. The empty spaces in the kier are reduced as far as possible by rivetting to the cover of the

kier a closed displacer and another in the convex base. The kier is heated indirectly by a coil round the lower displacer. The heat of the lye leaving the kier can be utilized by fitting a preheater in one of the two auxiliary boilers, the preheater being fitted with a perforated tube for the lye escaping from the kier, the heat of which thus serves to heat the liquor in the boiler.

*Turning motion for the regulating device, revolvable in both directions, of the entry sides of cloth entering apparatus for finishing machines.*

Waggon- und Maschinenbau Akt.-Ges., Görlitz, Germ. Pat. No. 432668 (1. 3. 25). The driven wheel is set directly upon the turning motion of the entry sides of the apparatus and the transmission gear with the driving wheels of the turning motion is mounted on the wings which carry these and can be adjusted by the reversing device.

*Hank mercerizing machine.*

Niederlahnsteiner Maschinenfabrik G. m. b. H., Niederlahnstein, Germ. Pat. No. 434263 (23. 5. 22). This invention relates to hank mercerizing machines in which the tension transmitted through a curved guide disc by means of a tension lever and lifting roller to the movable tension roller is limited by the action of a lever connected with the tension lever, this limitation being brought about when the tension passes a certain point by the weighted lever being lifted from its support. In such a machine the guidance of the tension lever in its plane of vibration is perfected by attaching the raising roller to an angle lever connected with the tension lever and movable in relation to its plane of vibration. The angle lever which carries the cam-roller is influenced by the weighted lever in that it can move out of the way of the tension lever when the tension limit set by the turning moment of the weighted lever has been passed. In this way the vibration peg of the tension lever itself has a firm bearing and a motion in its plane of vibration which is less affected by variations of load and other components.

*Device for braking the needles of knitting frames especially of Jacquard knitting frames.*

Dresdner Strickmaschinenfabrik Irmischer & Witte, Akt.-Ges., Dresden, Germ. Pat. No. 433757 (14. 5. 25). In order to provide for a uniform movement of the needles, in particular of the pressers, and to secure the position of the needles when raised or lowered, according to this invention the stems of the pressers are set in the slots of braking springs, which themselves are firmly held between two studs, or the like.



## Technical Information

### *Oil Stains on Cotton Fabrics.*

Inquiry No. 868. How can stains be removed from cotton cloth which have occurred in process of manufacture and have been caused either by the machinery itself, by drippings from the shafting, or by carelessness on the part of the operatives?

*Replies.* 1. There are no certain means of removing old mineral oil stains from fabrics. For this reason many weaving mills use saponifiable lubricating oils, being mixtures of mineral oil with fatty oils, such as castor oil, rape oil, or olive oil. Mixtures of this nature are fairly saponifiable and are therefore easier to remove. Ordinary oil stains withstand even high pressure boiling with caustic soda and the addition of emulsifying agents to the lye, within the limits imposed by their cost, has no effect. On the other hand, soaps or products similar to Turkey red oil, which contain solvents such as benzene, chloroform, methylhexalin, etc., can be used to advantage. They can be had from any firm dealing in special products for the textile industry. It is most effective to apply the agent in a high concentration, but even stains that have been removed remain visible after the fabric has been dyed. Dr. G.

2. It is a well known fact unfortunately that cloth fresh from the weaving shed is often stained with oil from the machinery. Besides this, the oil is not always pure, but may contain particles of iron, graphite, or similar substances, which makes the removal of the stains all the more difficult. A number of chemical works manufacture special agents for the removal of such stains and we ourselves have tested quite a number of them and found that the best is *Esdeform*. If the oil is clean, *Esdeform* itself will remove it simply by spotting; the oil in the stain evaporates together with the *Esdeform*. The matter is rather more difficult if the oil has been dirtied by graphite, rust, or the like and *Esdeform M* must be used in such a case, moistening the stains by means of a bottle with a spray cork and then washing them out with a sponge. Ordinary *Esdeform* is insoluble in water, while *Esdeform M* is soluble forming a dense foam which emulsifies the particles of the stain. If the goods are to be wet processed later on, the moistening with *Esdeform M* is sufficient, the emulsified particles being removed by the water during the scouring. The product is manufactured by

Messrs. J. Simon & Dürkheim, Offenbach-on-Main.  
R. B.

3. The problem of the removal of oil stains from cotton fabrics is old and has up to the present day not been satisfactorily solved. In proof of this it might be mentioned that the considerable prize set more than twenty years ago by the Industrielle Gesellschaft in Mulhausen in Alsace has not yet been presented. The nature of the oil decides whether the stain can readily be removed or not. If it is a saponifiable oil or a compound oil (a mixture of a saponifiable oil with a mineral oil), it will be more readily removed than if the stain is due to a non-saponifiable dark lubricating oil or a tar oil which contains particles of asphalt and coal. The age of the stain is also of particular importance, because dried up oil tends to become resinous and is much more obstinately attached to the fibres than fresh stains. The removal is also made more difficult when the stains have been practically burnt into the fabric, as is more or less the case when the goods are singed. Stains in bleached goods can be removed to a certain extent, depending upon the nature of the oil, by the usual kier boil, especially if a fat solvent soap (such as Verapol, manufactured by the Chemische Fabrik Stockhausen & Co., Crefeld, Rhineland) has been added to the lye. If the stains are very obstinate, there is nothing for it but to remove them from the finished goods, which is best done by lightly brushing them over with concentrated solutions of a fat solvent soap (or with an undiluted special soap such as Verapol) and then rubbing it out with water after a short time. It is also advantageous to let the goods lie over night after the stains have been dabbed with soap, so as to prolong the action of the fat solvent and the soap. In certain special cases (e. g. stains due to thick black lignite tar oils and the like) it is of advantage to give the goods an afterbleach with chlorine, but the bleaching bath should not contain more than one half gram active chlorine per litre at the utmost. Often, however, nothing will serve but the ultimate, radical means of a pair of scissors. M. K.

### *Milling Overcoatings.*

Inquiry No. 863. Is there any method of milling overcoatings of coarse, long-haired wool with from 15 to 20 per cent. recovered wool so as to lose as little flue as possible?

*Replies.* 1. In order to mill overcoatings composed of long-haired wool and recovered wool on the milling machine so as to lose as little flue as possible, care must be taken not to mill it either too dry, or too moist. The best plan is to give it a preliminary washing in the washing machine, then mill it, and afterwards finish the washing. It all depends upon the material used, the adjustment of the milling machine, and the lubricant used. Wash the goods with soap and Verapol (Chemische Fabrik Stockhausen & Co., Crefeld) beforehand, mill them on the cylinder with soap, or with Verapol soap, and then finish them as usual by washing them with soda.

ERJ.

2. The Farb- und Gerbstoff-Werke Carl Flesch jr., Frankfurt-on-Main, Brentanostr. 18, who manufacture Eufullon H and Eufullon extra, are able to place at your disposal a process for which patent protection has been applied for, according to which coarse long-fibred wools of the type mentioned mixed with from 15 to 20 per cent. recovered wool can be milled so well that the loss of material is reduced to a minimum. We would ask you to communicate with the firm mentioned, because the special process is not suitable for reproduction in the inquiry columns of this paper.

O. J.

#### *Bobbin Battery for Automatic Looms.*

Inquiry No. 848. Which weft-supply mechanism for automatic looms has proved to be best in actual practice, the Northrop system or the box system?

*Replies.* 1. Several decades ago the Northrop loom brought us the revolver battery for a limited number of bobbins. The Maschinenfabrik Rüti, vorm. Caspar Honegger, Rüti, Switzerland, and a number of other loom builders have spent particular pains on further perfecting this automatic loom. The loom built by them on Stein's principle is fitted with a box magazine, and no weaving mill that has made the acquaintance of this arrangement is likely to revert to the other system, especially in view of the fact that the boxes can hold the requirements of yarn for days at a time, according to the count. The Northrop battery must be filled at the loom, which is not necessary with the boxes. G.

2. It should be remarked, before passing any decision upon the two types of automatic looms, that the Northrop loom works more economically in small to medium-sized mills than the Stein loom, which has proved to be advantageous chiefly in large mills. In order to reap the full benefit of Stein's automatic loom a compressed air plant is required, such as can pay for itself only in large mills.

As far as reliability is concerned, the

Northrop magazine is to be preferred, for the bobbins are led better, and faulty changes occur less often. The ends of the picks are stretched over a special thread disc, so that it is impossible not to thread in the changed bobbin in the shuttle.

On the other hand Stein's loom offers the great advantage of a large reserve of bobbins. Consequently they do not need to be renewed so often, so that great economies in wages can be made by rationalizing the work.

For a number of years past the Maschinenfabrik Rüti vorm. Caspar Honegger, Rüti, has made a speciality of automatic looms on both Northrop's and Stein's system, which they build of the highest quality. All bearing surfaces of their looms are milled, and they have also introduced a number of improvements and simplifications.

F. F.

#### *What is to be Understood by the Expression "Weaving Coloured Cotton Goods"?*

Inquiry No. 844. The question relates to a fine cotton weaving mill which weaves articles with coloured yarn on jacquard, dobby, and plain looms, as well as circular and change looms.

*Replies.* 1. As the name itself indicates, the cotton coloured weaving mill produces mainly plain coloured cotton fabrics (staple articles) which arise by arranging coloured warp and weft threads according to a pattern. It begins, that is to say, where cotton white weaving stops, but its boundary in the other direction cannot be sharply defined owing to the differences in the nature of the fabrics. In my opinion a boundary line can only be drawn when special articles are manufactured in which the character of the fabric is mainly determined by the nature of the weave, that is to say, where an arrangement of coloured warp and weft threads according to pattern is more or less lost sight of, such, for instance, as lenos, plushes, covers, and so on. As a general rule weaving mills call themselves after the special articles which they mainly manufacture. Articles which they have taken up as a side line and are of less importance do not play much part in designating the branch of weaving.

S. L.

2. A power weaving mill becomes a mill for coloured goods when it works mainly with coloured warp and weft yarn and the preparatory machinery and looms are no longer sufficient for weaving gray cloth. The term coloured weaving mill has lost its significance when only white or gray warps are woven with a coloured pick. A mill of this type is neither a gray mill nor a coloured mill. A coloured weaving mill in the real sense of the term handles fabrics with warp and weft which are both coloured.

N.

### *Shedding in Jacquard Machines.*

Inquiry No. 847. For what jacquard fabrics particularly are the various jacquard sheds used, that is to say, open shed, upper shed, lower shed, centre shed, clear shed? What are their advantages and disadvantages?

*Replies.* 1. The upper shed jacquard lifts the shed out of the lower shed, and is practically good up to a pitch of 400, or 600 at the outside. It is the cheapest machine and is used for cotton, linen, and woollen fabrics. It permits of up to 140 picks, at the utmost 150 picks per minute. It has the disadvantage that the cross-bars and the goods are raised and lowered upon opening and closing the shed, whereby the cross-bars are shaken and the warp is treated roughly.

The lower shed jacquard machine is used, for instance, beside an upper shed machine on upholstery velvet looms.

The centre shed opens the shed from the middle yarn position upwards and downwards and permits of up to 180 picks per minute, whereby yarn and goods remain quiet. It is necessary for artificial silk, silk, and fine cotton counts, and is most used for upholsteries.

The straight shed jacquard can only be used for small machines up to 600 pitch with low depth of harness, whereby an uneven shed is formed. By specially equalizing the healds, or slanting the knife frame and the bottom board, a clear shed can approximately be made.

The clear shed jacquard machine has slanting knife frame and bottom board, so that the healds can have a greater lift increasing backwards.

The upper shed, lower shed, and clear shed jacquard machine is the most perfect, but also the most expensive.

The jacquard machines mentioned can be either single-lift, allowing of from 150 to 180 picks per minute, or double-lift machines permitting of 200 picks per minute. The latter are generally used for narrow cotton and linen looms with small patterns up to a pitch of 400 or 600. They contain twice as many hooks as given.

The double-lift jacquard machine with two cylinders permits of 220 picks per minute, and has also twice as many hooks as given.

The double-lift machines work with half-open shed, that is to say, the opening and the closing shed meet half-way, which tends to treat the warp gently.

Besides the sheds mentioned, there are other types for special purposes.

When purchasing new machines the cost must be taken into consideration as well as the technical requirements, for a mill will not work with most profit if its equipment includes unnecessarily expensive machines. It

would therefore be a mistake, for example, to purchase an upper shed, lower shed, and clear-shed jacquard machine for cotton damask with a small design.

The small brochure entitled "Die verschiedenen Jacquard-Maschinen-Systeme und deren Anwendung" (The various systems of jacquard machines and their use), which can be had from the Hausmeister der Webschule, Crefeld, contains details illustrated by drawings of most types of jacquard machines. U.

2. Lower shed machines are not to be spoken of at all in jacquard weaving. Upper shed machines are mostly used for plain cloths which are also of special width, because they are generally strongly built and run slowly, and thus support a heavy weight. Clear shed machines are used in making very dense fabrics, so that the shed must be as small as possible. They run very slowly too. The number of cords in a single cross row of the comber board must equal the number of hooks in a cross row. Only the cords and hooks of the back rows make the greatest rise with their healds, and consequently the warp in the other healds suffers less. In centre shed machines the front healds must unnecessarily make just as big a lift as the back healds. Centre shed machines are used when a large shed is required. The warp needs to make only one movement in order to reach half the height of the shed and when the slay beats up is all stretched in one plane, which is of advantage for closely woven goods. By open shed machines are probably meant here the double-lift machines which are used for rapid looms. The slower movement of the hooks and knives tends to treat the machine parts gently. They are not suitable for heavy, closely woven goods, because the threads in the lower shed sag and therefore yield when the slay beats up, while those in the upper shed sink when the slay beats up and those rising with the next pick rise up and form a partial closing of the shed, but are slack just like those coming down and therefore offer the beat-up of the slay little resistance. Those that remain below must chiefly bear the blow, whereby they are very liable to be broken. Kertess.

### *The Sizing of Bump Yarn.*

Inquiry No. 820. It has been found when sizing bump yarn with potato starch, either hot or cold, that the size very soon decomposes and becomes unfit for use, so that yarn cannot be made as stiff as necessary. When the wet yarn is squeezed out, the spinning oil in the yarn is also squeezed out, which is probably the cause of the trouble. Are there any means of preventing this, or what is the best size for bump yarn?

*Replies.* 1. The spinning oil in the yarn is not likely to be the cause of the trouble, but

rather the nature of the size used itself. The starch must be well broken up, that is, it must be in soluble form. Two processes for breaking up the starch granules are used, the diastatic process and the oxidizing process. The trouble described often occurs with starch treated by the first process, especially if instructions have not been followed exactly, for the starch molecule, which is capable of swelling up strongly, is broken down to form bodies of lower molecular weight, such as dextrin, maltose, and glucose, the two latter being sugars which are soluble in water. As the break-up proceeds the size becomes thinner and thinner. Diastatic products are excellently suited for desizing fabrics, but less so for the preparation of size. For this purpose the oxidizing process is more suitable. This causes the starch molecule to break down without, however, permitting the formation of the products of decomposition mentioned above, so that the preparation of the size is not confined to a definite temperature.

Adhesive power and viscosity are of importance for your size. Viscosity is necessary to enable the size to penetrate the yarn well and not merely clog up its outer surface. I recommend you, therefore to use for the preparation of the farina either Therhyd (supplied by R. Bernheim, Augsburg-Pfersee), or Aktivin (supplied by the Chemische Fabrik Pyrgos G. m. b. H., Dresden-Radebeul), or also Biolase (supplied by Kalle & Co., A.G., Biebrich a. Rh.). I have used the two first-mentioned products myself and imagine that there is no great difference between them. I am of the opinion, however, that I must advise you to use Therhyd, because the aim must be to make a size of permanent consistence which undergoes no change in use or on standing. After having broken up the starch granules Therhyd is entirely used up or destroyed and has no after-effect in the bath. That is to say, there is no further break-down and the quality of the size undergoes no change. I use one and one-half per cent. Therhyd calculated upon the weight of the farina, but one per cent. is also sufficient. H.

#### *Winding Egyptian Cotton Yarn.*

Inquiry No. 829. Is there any advantage in winding fine Egyptian yarn, say 50's to 80's, on the quick traverse winder, or is it necessary to wind fine counts like this on light wooden or paper tubes on ordinary winding machines?

*Replies.* 1. Yes, it is better to wind also fine Egyptian yarn of 50's to 80's on the quick traverse winder, because the output is higher than when flanged bobbins are used, which also leads to trouble later on when the other yarns are wound in cheeses, Particularly good

results are obtained by winding fine counts on the split drum quick traverse winding frame.

H. B.

2. It all depends upon how the spinning room is equipped. If quick traverse winders are used, then the thread guide with cam is to be preferred. The speed of the frame must be adapted to the quality of the yarn. If bobbin winding machines are used for such fine counts, the bearings of the shafts and of the bobbins must show no traces of wear, because otherwise the bobbins will wobble and ruin the yarn. If everything is in the best condition, then one method is as good as another, and the machines are used that happen to be present.

L.

#### *The Formation of Weals on Piece Goods Dyed on the Jigger.*

Inquiry No. 872. We are custom dyers of cotton, linen, and half-linen fabrics, and fabric combinations of the most diverse type from different mills pass through our hands. It very often happens, when dyeing the goods on the jigger, whereby a large number of pieces are sewn together to form one lot, that some of the warp threads draw together and form lumps. These lumps are often found only on one piece and stop at the end seam. They often appear only at one spot in the width, and at other times at several places, sometimes also on a number of pieces. But even if the fault occurs only in one piece in the middle of the lot, the other pieces are bound to suffer too, because pieces which do not show the fault are liable to be distorted gradually when wound upon the piece which has this blemish. The drawbacks which thereby ensure for the piece dyer are very unpleasant, leading as they do to uneven dyeings and even to the goods being torn through the strain placed upon them by large weals or lumps. On the other hand, the nature of the defect seems to indicate that it is not due to any faults in the treatment on the jigger, but that they are due to faults in weaving. Where is the fault to be looked for?

*Replies.* 1. The faults described are due to the weaving. Irregularities in the yarn and in its tension during weaving lead to the formation of such weals at isolated places only. It is true that irregularities in the jigger itself, such as knots in the guide rollers, can lead to the formation of such weals, but then the fault appears in all the pieces. If it proceeds from the seam, the method of sewing the pieces together may be the cause, for each longitudinal fold, as you yourself have noticed, causes trouble throughout the whole lot. The best plan in this case is to sew the ends of the pieces regularly together, so that the seams cannot cause folds, and to keep the jigger in proper condition, that is to say, the guide and

draft rollers must be absolutely round and run lightly, while lying absolutely parallel and horizontal. Finally the use of open-width holders during the passage of the goods keeps them free of folds. Different types of these holders are supplied by a large number of machine works.

Dr. S.

2. The troubles that you describe would seem to confirm your supposition that they are due to carelessness in the weaving shed, e. g. the use of irregular warps, or the warp may have been badly beamed, or the warp beam brake is not in order, and the like. But before complaining at the weaving mill, I would advise you carefully to look over the whole of your own equipment. For instance, in sewing the pieces together, great care must be taken to keep the seams as straight as possible at right angles to the selvage, leaving sufficient play for the thread. Too tight seams pull the fabric together and might cause weals. The troubles that you mention might also be caused if the upper and lower rollers of the jigger are no longer parallel, either through the bearings being worn out or through the foundation of the machine having slightly sagged. Even slight irregularities in the rollers, which only an experienced machine repairer can put right, can be the cause of very unpleasant distortions in large dye lots. In my opinion you should always try to place only the same or related qualities together.

K. F.

#### *The Finishing of Fine Shirtings.*

Inquiry No. 856. I have light fine shirting to finish 18/4 36/42 — 18/16 36/42 — 15/14 36/42, and so on. I am unable to get good results on these light goods with the ordinary back filling mangle and should be glad to learn whether there are special machines for this purpose.

Replies. 1. Light calicos and fine shirtings cannot be given a good finish on an ordinary machine, because the filling is uneven and the weave cannot be completely closed, as is required for shirtings, and so on.

In order to secure a handsome closed filling, a special machine is requisite. I could give the inquirer further details; it would occupy too much space to go into the matter here.

Hm.

2. A special machine is not absolutely essential for the finishing of light fine shirtings of the weaves 16/14 — 18/16 — 36/42. Care must merely be taken to fit each operation accurately to suit such light goods.

First of all the doctor must be set very lightly, that is to say, both the pressure of the doctor on the dipping roller as well as the distance between the two must be capable of accurate adjustment. The doctor must be exactly horizontal and the dipping roller must

not show the slightest irregularities. Apart from this, the composition of the sizing bath is of the greatest importance. Since a comparatively large quantity of China clay and talc is required for this finish, it is imperative to add a good binding agent to the farina so as to retain the fillers sufficiently in the fabric and not let them dust out of the finished goods later on. The well-known "Original Quellin Sch" is very well adapted for this purpose, owing to its very high adhesive power. The following recipe may be given, which has proved in actual working practice to be very well adapted for such finishings.

200 litres water

8 kilos farina

2 kilos Original Quellin Sch

(Kantorowicz & Co., Breslau 6)

36 grams China clay

14 grams talc

4 grams sapolin

3 litres finishing oil

500 grams soap

about 100 grams ultramarine blue.

After this filler has been spread on the goods by means of the doctor, it is the best plan to put the fabric at once in a stenter with a drying arrangement, so that the pretty thick layer of size has no time to penetrate to the face of the goods. But if the cloth is to be dried on the cans or in the festoon dryer, it must not be rolled up under any circumstances, but must be cuttled by the finishing machine in folds.

If these points are strictly paid attention to, the light fine shirtings the subject of the inquiry, can be finished quite well on the ordinary back filling mangle.

A. S.

#### *The Purification of the Oil Recovered from the Milling Operation.*

Inquiry No. 827. From the milling effluents we recover about 3000 kilos of oil monthly which contains a large amount of impurities in the way of unsaponifiable fats and resins, together with about 70% oleic acid. We should be glad to learn how this oil can be purified by a suitable distilling apparatus or plant, so that Oleine can be recovered which is fully up to type and can be used in our works without further treatment.

Replies. 1. In order to indicate to you a suitable method of purifying the oleines recovered from the milling effluent it is necessary to know how you extract them from the milling baths, a point which you do not mention. It is not advisable to use an extraction apparatus for the purification, because the unsaponifiable oils and resins, on the one hand, are more or less soluble in organic solvents, and the first cost of an extraction plant, on the other hand would be too expensive for the quantities coming into question. Besides

this, the fire hazard represented by a plant of this nature must not be neglected. There is only one way of simply and cheaply purifying the oleines and that consists in saponifying them several times and salting out the residue containing the oil. The equipment required is very simple and no expensive apparatus is necessary. The method has proved its worth splendidly in large scale working and many thousand kilos of oleine have been recovered by it for the mills. Ho.

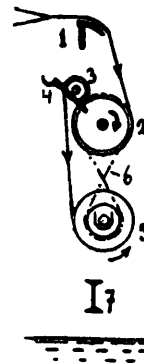
2. It would not pay erect a distilling plant for such small quantities of oil, besides which the oleine, even in an impure state, can be used for the manufacture of cheap soaps, so that it is advisable to sell the oil to soap factories. Dr. S.

3. The purification of only 3000 kilos of oil monthly can be done in the ordinary course of manufacture and it would not seem to be of any advantage to erect an expensive apparatus for the purpose. A distillation plant, it is true, gives good results for the purpose in view, but it requires careful operation, so that it can hardly be attended to by an ordinary workman, and would probably be too expensive for the small monthly quantity. Besides this it must not be overlooked that any mineral oil found in the extraction oil is less often due to the lubrication (for it is to be hoped that large works nowadays add no mineral oil) than to chance drops and the like, and goes over, at least partly, when distilled. The object aimed at can be secured, so far as that is possible, better by purifying the extraction oil with oxidizing agents and filtering it thoroughly. A simple apparatus is sufficient. The whole quantity coming into consideration can be worked up in lots of about 1000 kilos in a few days each month with an apparatus which is not affected by acids and can be designed and made in the mill itself. The extraction oil cannot be made as valuable as it was before either by distillation or by bleaching, but it can be so far purified that it can be used without any further preparation for lubricating lower-grade goods. But of course no one, even if he is acquainted with this process, can express a definite opinion unless he has had a chance to examine a good average sample of the extraction oil recovered in the mill making the inquiry. Schw.

*Take-up Motion for Automatic Looms.*

Inquiry No. 823. Who can give us here a description with a sketch of the take-up motions of automatic looms which enable the weaver, without stopping the loom, to remove the whole piece together with the beam from the loom and set in an empty beam again?

Replies. 1. The sketch given below shows a take-up motion for removing the cloth without stopping the loom.



The usual sand roller 2 is driven by the regulator. A cylindrical iron rod 3 of from 3 to 4 centimetres thickness lies with its journals on the slanting bearing faces 4 which are provided at the upper end with depressions for the reception of the iron rod, so as easily to introduce the cloth. The wooden cloth beam is from 6 to 8 centimetres in diameter and has a through-going iron core in wide looms, but inserted iron journals are sufficient for narrow looms. The journals lie in open bearings so that the beam can easily be lifted out. It is driven by a small belt 6 (such as is used for sewing-machines), or by a stout cord. In order to prevent the driving cord 6 from slipping off the roller 2 a few staples (such as are used for attaching barbed wire to a fence) are knocked into the edge of the roller all round, if it is made of wood. For the same purpose an iron roller is furnished with a ring of thick wire at the edges. When the weaver wishes to remove the cloth, he lays the full cloth beam 5 upon the floor (if necessary, upon a protective cloth) in front of the loom and inserts a new empty roller which he has kept ready in the bearings. He then cuts off the cloth and wraps the end of the new piece round the empty beam, while the full beam is removed. There are thus a number of spare cloth beams 5 necessary, according to the nature of the cloth, the length of the piece, and so on. U.

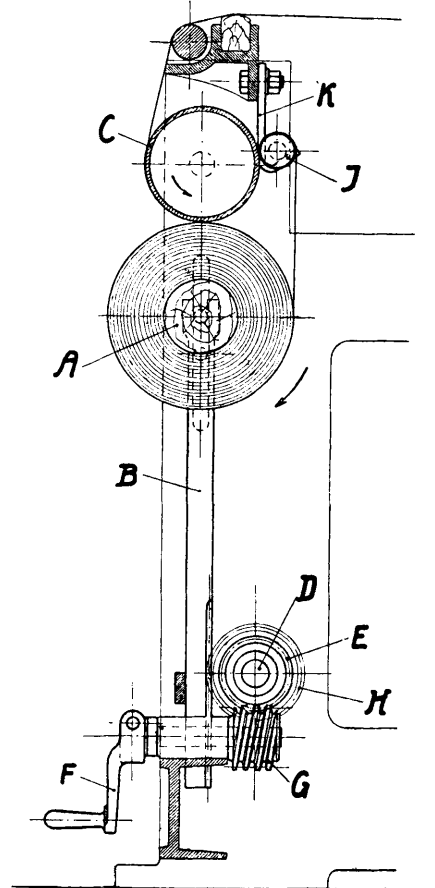
2. The cloth beam must not be mounted in the side frame of the loom if it is to be removed from the loom during weaving when full. It must be mounted in a weight lever which is provided with a sufficiently deep depression where the beam rests on it. The lower end of the lever has a slot with a bolt passing through it. A flat iron hook is hung upon this and the hook must be of such a length that it can be hooked on the lower loom bar when the full cloth beam is pressed

down. If the inquirer will get into communication with a loom manufacturer who produces automatic looms he will get the necessary parts all ready for use. The parts to be found on an ordinary loom are unusable anyhow. N.

3. An approved take-up motion for automatic looms is that with spring pressure on the cloth beam, the action of which can be seen from the sketch appended. The cloth beam A is pressed by means of a rack B on the sand beam C and made to revolve through the friction. The necessary pressure is exerted through a through-going shaft D by means of a toothed piston E on both sides on the rack B. This shaft is driven by a hand crank F, a worm G, and a worm wheel H, which is mounted free to rotate on the shaft E with the interposition of a torsion spring which acts upon a driving pin attached to the shaft D. As the cloth-beam fills up the spring is tensioned more and more and the pressure on the sand roller becomes greater. In order to prevent the projection of parts, the hand crank F is provided with a hinge. When the weaver desires to set in a new cloth beam, he loosens the torsion spring by means of the worm drive, so that the cloth-beam retires from the sand beam. A tension beam I lying upon the sand-beam prevents the cloth from slipping back when exchanging the cloth-beam, so that the loom is continually kept in action. The tension beam is normally of from 40 to 45 millimetres in diameter, and it is often covered with felt so that it lies on the sand beam with its whole length. The tension beam is mounted by means of the hook J which is screwed to the breast beam. If there is room enough, the necessary pressure to be exerted by the cloth beam can also be arranged for in a simpler way. In this case the cloth-beam is mounted in two-armed rotatable levers, upon the other ends of which weights or springs act.

Another solution is the indirect take-up motion, according to which the cloth-beam is fixed in its bearings, and is made to revolve

by a spur wheel drive from the sand beam. In order to take care of the slower rate of revolution of the cloth beam as it fills up, a friction coupling must be inserted in the transmission gearing.



It is a disadvantage of this arrangement that the cloth is often irregularly wound upon the cloth-beam beyond its length. H. H.